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TRAIL & LANDSCAPE

A Publication Concerned With Natural History and Conservation

The Ottawa Field-Naturalists' Club

TRAIL & LANDSCAPE

Editor
Karen McLachlan Hamilton

Associate Editor
Fenja Brodo

Production Assistant
Alan German
Sandra Gushue

Mailing Team
Louis L'Arrivée
Co-ordinator
Karen McLachlan Hamilton
Diane Lepage
Jack MacKenzie
Jeanne McGugan
David Smythe
Verna Smythe

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The Ottawa Field-Naturalists' Club

— Founded 1879 —

President
Eleanor Zurbrigg

Objectives of the Club: To promote the appreciation, preservation and conservation of Canada's natural heritage; to encourage investigation and publish the results of research in all fields of natural history and to diffuse the information on these fields as widely as possible; to support and co-operate with organizations engaged in preserving, maintaining or restoring environments of high quality for living things.

Club Publications: THE CANADIAN FIELD-NATURALIST, a quarterly devoted to reporting research in all fields of natural history relevant to Canada, and TRAIL & LANDSCAPE, a quarterly providing articles on the natural history of the Ottawa Valley and on club activities.

Field Trips, Lectures and other natural history activities are arranged for local members; see "Coming Events" in this issue.

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Membership application, correspondence :
THE OTTAWA FIELD-NATURALISTS' CLUB
Box 35069, Westgate P.O.
Ottawa, Ontario K1Z 1A2

Information:
(613) 722-3050
After 10 a.m.

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Welcome New Members

Ottawa Area

Nel Ahmed
Dan Baker
Amy Bender
Lisa Benedetti
Bette Blore
Barbara Brandreth
Michel Charron & Pascale Groulx
Barbara & Norman Chouinard
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Dave Smythe
Membership Committee
May 2001

The 2001Soirée and the 2000 OFNC Awards

Karen McLachlan Hamilton with photographs by Ken Taylor

On April 27 the Club celebrated another year at the annual soirée held at the Unitarian Church. The festivities began with a wine and cheese social where everyone had the opportunity to meet new faces, renew friendships and reminiscence about past experiences. A series of paintings and photographs done by Club members were also on display for our enjoyment. It was a difficult choice when it was time to vote on your favorites. I particularly enjoyed talking with the Macoun Field Club members who entertained us with posters and demonstrations on a wide variety of topics. All did a wonderful job and should be congratulated.

Eleanor Zurbrigg began the formal portion of the meeting with an introduction highlighting some of the changes in the Club in the past year. She was followed by talks given by the three of the Macoun Field Club members. Kyle Bentley, Hugo Kitching and Karl Grenke gave very animated talks on their experiences throughout the year. We heard all about fossils, carrion beetles, carnivorous plants and overnight field trips. We also learned that the work on the study trees continues. Many heartfelt thanks went to Mary Stewart and Gerry Lee for allowing the Club to explore their lands and to Rob Lee and Barbara Gaertner for all their work with the Club.

Kyle

Hugo

Karl

The award portion of the evening began with the awards given for the natural history exhibits. The judges, Janet Castle and Ken Taylor, gave Sara Potvin-Bernal first prize for her unique display and demonstration on surface tension.

Sarah

Kathleen

Second and third went to Kathleen and Steven Watt respectively who both studied the birds in the area around their home.

Steven

Julian

Julian Potvin-Bernal was awarded fourth for his interesting display and oral presentation on eels.

This year the OFNC recognized nine people for their contributions to the Club and

its objectives. Eleanor Zurbrigg presented the awards.

Donald M. Britton received an honorary membership for his outstanding work in plant taxonomy and systematics. He is recognized world wide for his contribution to the understanding of such fern groups as *Dryopteris*, *Isoetes*, *Lycopodium*, *Polypodium*, *Polystichum* and *Woodsia*. He, along with William Cody, produced "Ferns of Canada". Throughout his career, Dr. Briton has described taxa new to science, written countless papers, and inspired professionals and amateurs alike.

One of the OFNC's most distinguished members, John (Jack) M. Gillett, received an honorary membership for his long standing career as a plant taxonomist and for his contributions to the Club. Over the years, Jack worked on many plant groups, and produced many papers of great importance to botanists across North America. Most recently, he has written many articles for

T&L on the plants of the Ottawa district. Jack served as Treasurer, Auditor, and Publications chair for the OFNC and has lead field trips and given talks to the Club for more than 50 years.

E. Franklin Pope's years of dedication to the Club was recognized with his honorary membership. Frank has been on council for 22 years and he continues to do so. He has served as Corresponding Secretary, Recording Secretary, Finance chair, Treasurer and as Club President. He has also represented the Club on the Federation of Ontario Naturalists. Repeatedly, Frank has assumed responsibilities that demanded much time and energy. His long presence and his thoughtful and experienced contributions has provided the Club with important continuity.

Joyce and Allen Reddoch received a joint honorary membership primarily because they contribute equally and it was difficult to separate the activities of one from another. Both served on council and on various committees and have spent many years representing the Club at many functions. Joyce's nine year tenure as editor of *T&L* and their work together on orchids has been monumental.

The Conservation Award (member) went to Albert Dugal for his high degree of diligence and dedication to habitat protection. Albert continues to work on saving the Leitrim Wetlands, as well as the South Gloucester Conservation Area. He also triggered the review which restored provincially significant status to the Fernbank Wetland, and helped gain protection of the Shaw Woods, and Petrie Island.

David Miller received the Conservation Award (non-member) for his work as an environmental planner with the city of Ottawa. His ability to translate ecological information and its implications into a form easily understood by bureaucrats and politicians has lead to such things as the acquisition of a significant portion of the South March Highlands.

Robert E. Lee received the coveted Anne Hanes Natural History Award for his article entitled "The Leopard does not Change Its Spots" published in *T&L*. This article is an expression of his impressive knowledge of the region's natural history, much of which has been gained through independent investigation, lively curiosity, patience and the tenacity. Rob's interest in natural history began in 1981 as a Macoun Club member and this interest continues today as he is one of the leaders of the Field Club.

The George McGee Service Award (for significant contributions towards the Club) was presented to Philip Martin. Soon after arriving in Ottawa, Philip became an active participant in Club affairs. He is regularly leading walks, and is always anxious to share his knowledge with others. He has chaired the Excursions and Lectures committee and has participated on the Conservation Committee where he is now a major player in the Club's effort to save the Leitrim Wetland.

The 2001 Member of the Year went to Sandra Garland who, as Web Master, has created a web site which has been recognized by the Nature On-Line columnist for *Nature Canada* as pleasing in design, accurate and easy to use. She has spent countless hours developing original material and transforming submitted information into a site which is fresh and timely. It is truly "a must see."

The final awards were given to the winners of the photograph and art display. After all the ballots were counted, the Tiger Swallowtail taken by Grant Savage won for the best photograph, while Heather Vale won for her painting of a vine scene.

The soirée ended with a tribute to a long standing member, Ellaine Dickson. Elaine has been an active member of the Club for 33 years. She has been on countless committees, lead many walks, carved numerous awards and has just stepped down as phone custodian. I believe no one can deny that her years serving the Club is an accomplishment few will attain. The statement that "Ellaine was the piece that held the Club" says it all. She will be greatly missed. As a gesture of appreciation, the Club presented her with a copy of an antique floral painting done by J. Nugent Finch which was originally published by D. S. Williams. Afterwards everyone partook in a cake and coffee celebration to end the evening

Ottawa Regional Science Fair 2001

Terry Higgins

On April 7, 2001, Ken Allison and I had the pleasure of attending the 40th annual Ottawa Regional Science Fair at the Museum of Nature. The Ottawa Field Naturalists' Club sponsors three awards in the natural history category. As judges, our job was to judge exhibits based on understanding, imagination, execution, presentation and display.

Our task was made somewhat easier by the fact that, although all the exhibits were brilliant, very few dealt with natural history. Consequently all the winners were in the junior category and all three concerned plant life.

The winners were as follows:

Amy Bender, Turnbull School. What is the Effect of Acid Rain on Plant Organisms?

Amy really impressed us with her display and knowledge of her subject. It was obvious that she had done extensive research and had put a great deal of effort into the project. She even made her own acid from sulfur paper! Amy's oral presentation was equally well done.

Andrea Mills, Turnbull School. The Effects of De-Icing Salt on Plant Growth.

Andrea won us over with her wonderful presentation and her hard work. Her exhibit was well displayed and easy to follow and understand. Andrea was quite knowledgeable on her subject and answered all our questions easily.

Anne Rimmer, D. Roy Kennedy School. Aquatic Ecosystems.

Despite having almost lost her voice to a cold, Anne gave us her complete oral presentation. We were amazed at how keen she was and her enthusiasm really shone through. Her display was well constructed with a logical thought.

Congratulations to these three young ladies and best wishes for their continued success!

Winter-Early Spring Bird Sightings (December 1, 2000-March 31, 2001)

Chris Lewis

Our previous two winters (1998-99, and 1999-00) were kind to birds and birders alike. In fact, the mild temperatures inspired a renewed interest in the 50 km Winter List, an attempt to record as many species as possible within the 50 km radius of the Peace Tower from the first of December to the last day of February. In 1998-99, Gordon McLean of Ottawa not only broke the "Cool 100" (the 100 species mark, which is considered an excellent total for winter birds in the 50 km), but set a record of 108 species!

But in 2000-01, we experienced a "Classic Ottawa Winter"; lots of snow and cold temperatures from early December through the end of March. Needless to say, any attempt at a "big winter list" would have been a lost cause that season.

Nevertheless, it turned out to be an interesting winter/early spring birding season. On the December 17 Ottawa-Hull Christmas Bird Counts (CBC), a total of 72 species were found by 90 field observers and 26 feeder-watchers. Record high numbers of **Cooper's Hawk, Red-tailed Hawk, Mourning Dove, Northern Cardinal** and **Dark-eyed Junco** were counted, as well as a few other "goodies", such as:

WATERFOWL

Harlequin Duck. . . Both a male and female were found. The female (probably the SAME bird which over-wintered on the Rideau River at the Rideau Tennis Club / Strathcona Park in 1999 - 00), continued to be very active in the same location this year. She was still present at the end of March. The male, an immature bird, was seen until at least mid-January in the rapids on the northeast side of the Champlain Bridge. A **male Wood Duck**, also discovered on the Christmas Bird Count, over-wintered at the Rideau Tennis Club.

Barrow's Goldeneye. . . Two males were found in the Remic Rapids on the CBC, and up to 4 males were seen in this location in late February. At least one male and one female lingered here until mid-March.

Aside from the CBC, birds of interest in the 50 km radius included:

RAPTORS

*****BLACK VULTURE.....A FIRST RECORD FOR THE 50 km radius!!*****
A single bird was seen twice on the morning of March 25, first on Herzberg Road in Kanata, and then subsequently flying west over Berry Side Road near Dunrobin. Black Vultures have been rare stragglers to southern Ontario since the first report in 1947, but have appeared only as far north as the north shore of Lake Ontario. Considering the rapid northward expansion of **Turkey Vultures** over the past 20 years, it was only a matter of time before their cousins began to wander up here as well. Congratulations to Tom Hanrahan for this excellent discovery.

Bald Eagle. . . Unprecedented numbers! At least 7 were seen flying over the Eardley Escarpment of the Gatineau Hills on January 14, and up to 13 were concentrated at a deer carcass on a slope of the escarpment on March 3, along with at least 45 Common Ravens. Adult eagles interacted with several immatures in various plumages, as well as with the Ravens -- a spectacular sight! On March 25, 10 of these eagles were seen again in the same area. Both Bald and Golden Eagles have enjoyed a recent resurgence in numbers, not only in the 50 km, but all over North America.

There were several sightings of **Northern Goshawk** from the River Road trail as well as Range Road (Shirleys Bay). An immature female along Range Road was unusually accommodating for this wary species; on January 28, she perched for almost half an hour, allowing birders wonderful views of an accipiter that seldom sits still.

The **"Downtown Pergerines"** came back! "Horizon", the female of the pair that nested successfully on the Crowne Plaza Hotel in 2000, was sporadically seen in late winter on the hotel as well as on the R.H. Coats building at Tunney's Pasture (Scott St. & Parkdale Ave.). At the end of February, her mate "Connor" returned and was observed interacting with her near their nest-ledge on the hotel.

GALLINACEOUS BIRDS

Coveys of up to 14 **Gray Partridge** were found in a few locations, including Marathon Village and the fields west of the bus terminal at Fallowfield and Greenbank Roads. **Ruffed Grouse** were more active towards the end of the period, especially in the Shirleys Bay and River Road areas. A beautiful uncommon **rufous-morph grouse** was observed feeding on Nannyberry (*Viburnum lentago*) fruits along the 4th Line north of Herzberg Road on January 23, and a couple of males were "in full ruff" on Lois Ave. near Shirleys Bay on March 31.

GULLS

From mid-December through mid-January, numbers of "white-winged" Gulls were high. At least 15 **Iceland** and 25 **Glaucous Gulls** were seen at the Trail Road Landfill site (The Nepean Dump) on January 19. There was also a 1st-winter **Thayer's Gull** at The Dump on January 4, and four Lesser **Black-backed Gulls** were found on that date in the same location. The rest of the winter was pretty quiet for gulls, but in mid-March, 1000's of **Ring-billed Gulls** (like them or not, a sign of spring) began to haunt parking lots and congregate on the ice-edges of the Ottawa River along with the Herring and Great Black-backed Gulls.

OWLS

Another sign of spring was a **Great Horned Owl** on a nest, in a wood-lot off Wall Road in the Orleans / Navan area. **Snowy Owls** were scarce in the early part of the winter except for one that was fairly reliable along Frank Kenny Road near Navan. Another bird was more elusive, but was occasionally seen in the area of Eagleson and Rushmore or Barnsdale Roads. However, up to six Snowys were reported east of Casselman from mid-February to late March.

An irruption -- no, an EXPLOSION! -- of **Northern Hawk Owls** occurred all over southern Ontario, including at least 11 individuals. Among the most consistent and easily viewable visitors to our area was a bird near Merrickville in the early part of December. Another Hawk Owl was present in Kinburn from mid-January until at least February 3, and there were two within a few kilometers of each other near Gatineau, Quebec. The longest visit was by a bird in the Antrim area, who came to be known as "Mr. Gas", due to its frequenting of the fields adjacent to the Mr. Gas Station along Highway 17 west of Antrim (November 23, 2000 - February 20, 2001).

Another northern owl species that invaded southern Ontario this year was **Great Grey Owl**. Sightings in the 50 km radius were not as numerous as in other locations around the province, but one bird was seen twice at River and Riddell Roads west of Kanata. Other individuals were found near Aylmer as well as in Gatineau on the Quebec side, in January.

Three **Boreal Owls** were discovered between January 1 - 28. All were found west of Ottawa -- two in the River Road area, and one in the village of Marathon west of Carp. Always a rare find, it was a treat to have this many sightings in our area. Unfortunately, none of the owls remained for more than one day at the same location.

WOODPECKERS

A couple of individuals of both **Three-toed** and **Black-backed Woodpeckers** were reported early in the period, mainly from the River Road Trail. A female Three-toed along this trail, as well as another on the Jack Pine trail on Moodie Drive, were sporadically seen in January. An additional Three-toed was found in a wood-lot near the Aviation Parkway in March and lingered until at least March 20. Compared to recent winters, especially after the Ice Storm of '98, these woodpeckers were relatively scarce.

PASSERINES

In addition to the large numbers of **Common Ravens** seen over the Eardley Escarpment, several groups and individuals of this species were observed, including a nesting pair at the Carlington Quarry in early March. Another nest was occupied by an incubating female on the Rogers / ATT tower in Kanata. The Carlington Ravens have been nesting in the quarry since at least 1996, and the Rogers / ATT nest has been active for the past three years. Formerly rare in our area, Ravens are now becoming a common sight in Ottawa.

Red-breasted Nuthatches were more abundant than last winter, but **Bohemian Waxwings** and **Northern Shrikes** (never predictable in Ottawa) were "hit and miss". A huge flock of Bohemians (in excess of 1000 birds) gathered along Range Road on March 30 - 31. **Cedar Waxwings**, typically rare here in winter, were present in small numbers with the Bohemians throughout the period but became more common, as expected, towards the end of March.

Lapland Longspur numbers at the Trail Road Landfill site increased to eleven by March 7. The "Dump Longspurs" continued to be seen into late February.

White-winged Crossbill. . . The most nomadic of our "winter finches", these beautiful wanderers began to arrive last year in early December, and soon they were abundant in any forest with substantial White Spruce stands. By the first week of January, males were heard singing and seen performing territorial and courtship displays. The presence of breeding White-winged Crossbills is of great interest this year, due to the **Ontario Breeding Bird Atlas**, which officially begins in April 2001.

Pine Siskins became abundant as the season wore on. Large flocks, including males in full song and pairs feeding along roadsides were encountered mainly in the same areas as the White-winged Crossbills.

Other "expected" winter birds, such as **Purple Finches, Common Redpolls** and **Evening Grosbeaks**, never really materialized in Ottawa-Hull in significant

numbers. In fact, the only report of any good number of Evening Grosbeaks was from the Lac-la-Blanche area in the extreme northeast. The only Common Redpoll report was of a brief fly-over in early January. Furthermore, in spite of the voluminous cone crops on the White Pines this year, **Red Crossbills** were completely absent from our area. This paucity of finches, other than White-winged Crossbills and Pine Siskins, was also evident from other reports from around Ontario, including Algonquin Provincial Park.

SIGNS OF SPRING. . .

Turkey Vultures, Killdeer, Eastern Bluebirds, American Robins, Song Sparrows, Red-winged Blackbirds and **Common Grackles** began returning on schedule, but by the end of March, everyone (with the possible exception of a few mad skiing enthusiasts) was thoroughly sick of winter. However, we know how rapidly the weather can change, and anticipating the melt-down of those Himalayan snow-banks at least gave birders something to look forward to -- the annual spectacle of 1000's of migrating waterfowl arriving in the flooded fields and rivers.

The bird reports in this article were derived from various sources, including the OFNC Bird Status Line and Internet postings on the Ontario Field Ornithologists (OFO) listserv ONTBIRDS, as well as personal communications. Many thanks to all birders who contributed their observations.

To report bird sightings in the Ottawa area, please call the Bird Status Line at 825-1231. To hear about recent reports, call 860-9000. To subscribe to ONTBIRDS on the Internet, the address is *Majordomo@hcwn.org* .

For more information about the Christmas Bird Count, the Ontario Breeding Bird Atlas, and other birding-related events in the Ottawa area, watch for announcements in *Trail & Landscape*, and also check the OFNC Website at *http://www.achilles.net.ofnc/index.htm*.

Keys to the Fishes of the National Capital Region

Brian W. Coad

Introduction

A guide to the identification, distribution and biology of fishes in the National Capital Region (NCR) was published by McAllister and Coad in 1975 and a revised and annotated list of species was given by Coad (1986). Neither of these works provided an identification key to the species. While certain species in the NCR are very distinctive and recognisable at a glance, others are superficially similar. Keys provide a structured means to identify all the species, especially for one who is new to the fish fauna.

The first key presented here is to the families of fishes. Where there is only a single species in the family, that species will be identified here. Separate keys are given for families with more than one species.

Two species not recorded in Coad (1986) have been added to the list. These are *Ichthyomyzon castaneus* Girard, 1858 (Chestnut Lamprey/Lamproie Brune) documented by Renaud and de Ville (2000) and *Carassius auratus* (Linnaeus, 1758) (Goldfish/Cyprin Doré). Goldfish have been introduced to several ponds in the NCR and seem to survive the winter. They may revert to the wild type with camouflage colouring, losing the typical "gold" colours.

Three "species" are not included. The Oscar, a South American member of the family Cichlidae (*Astronotus ocellatus*) caught in the Rideau Canal in 1999, was evidently a released aquarium specimen which became a minor media star (Anonymous, 1999; Barker, 1999; Bonenfant, 1999; Duquette, 1999; Renaud and Phelps, 1999; Renaud and Berkowitz, 1999). A 12-14 inch fish with piranha-like teeth was found dead on the Queen Elizabeth Driveway shoreline, Dow's Lake on October 23 by Hedrik Wachelka of Muskies Canada in 1994. It was found after the water was drained, and was photographed at the time. Subsequently it has been identified as a pacu (*Colossoma bidens*), another South American fish of the family Characidae, and also most probably an aquarium release (Renaud and Phelps, 2000). The blind fish from groundwater at Carleton University was a hoax; the article appeared just in time for April Fool's Day (Anonymous, 1994).

Notes on Nomenclature

The scientific names of fishes are apt to change with research on relationships and on taxonomy. Table 1 gives equivalent names as well as a complete list of the species. There are also some minor emendations of name endings and spellings. For all these changes, the ultimate reference is Eschmeyer (1998). Arrangement of families follows Nelson (1994).

Notes on the Keys

The counts and measurements given in the keys are for each species over its whole distribution The ranges for these characters are likely to be less extensive within the restricted geographical area of the NCR.

Some characters are best examined under a microscope, require dissection and/or require some skill to observe accurately, e.g., gill raker counts, pharyngeal tooth structure. Species can often be distinguished on colour alone but colour does vary with season, by individual, by sex of the specimen, and by preservation state if live specimens are not at hand. Colour can be misleading therefore countable or readily observed characters are best.

A knowledge of fish anatomy and terminology of body parts is necessary to understand the keys. Some structures are briefly described in bold text where they first appear in these keys. The Figures also illustrate structures used in identification. McAllister and Coad (1975) and Coad *et al.* (1995) give additional illustrations and glossaries. Generally, closely related fish of equal size (and age) should be compared if at all possible as there are changes in characters with growth, e.g., body proportions, gill raker length. Collections at the Canadian Museum of Nature contain a wide variety of specimens of all National Capital Region species and these can be examined with permission of the Vertebrate Collection Manager.

Summary and simplified distributional information is given after each species and some more recent information is also included (see McAllister and Coad (1975), Coad (1986), RMOC (1995a, 1995b, 1996a, 1996b, 1998), Phelps *et al.* (2000a) and Phelps *et al.* (2000b) for further details). "Widespread" indicates that the fish is found in several to many diverse ecological and geographical habitats and localities, usually in both Ontario and Québec, while river localities indicate the species is restricted to those rivers and/or lower reaches of tributaries. Further field work may expand the distributions given here although restricted distributions are usually indicative of narrow tolerance for environmental conditions, e.g., the Lake Sturgeon is not likely to be found outside the large Ottawa River and lower reaches of large tributaries; salmonids generally prefer cooler waters and are most common on the Québec side; the Spotfin Shiner is known only from a few localities such as Bear Creek.

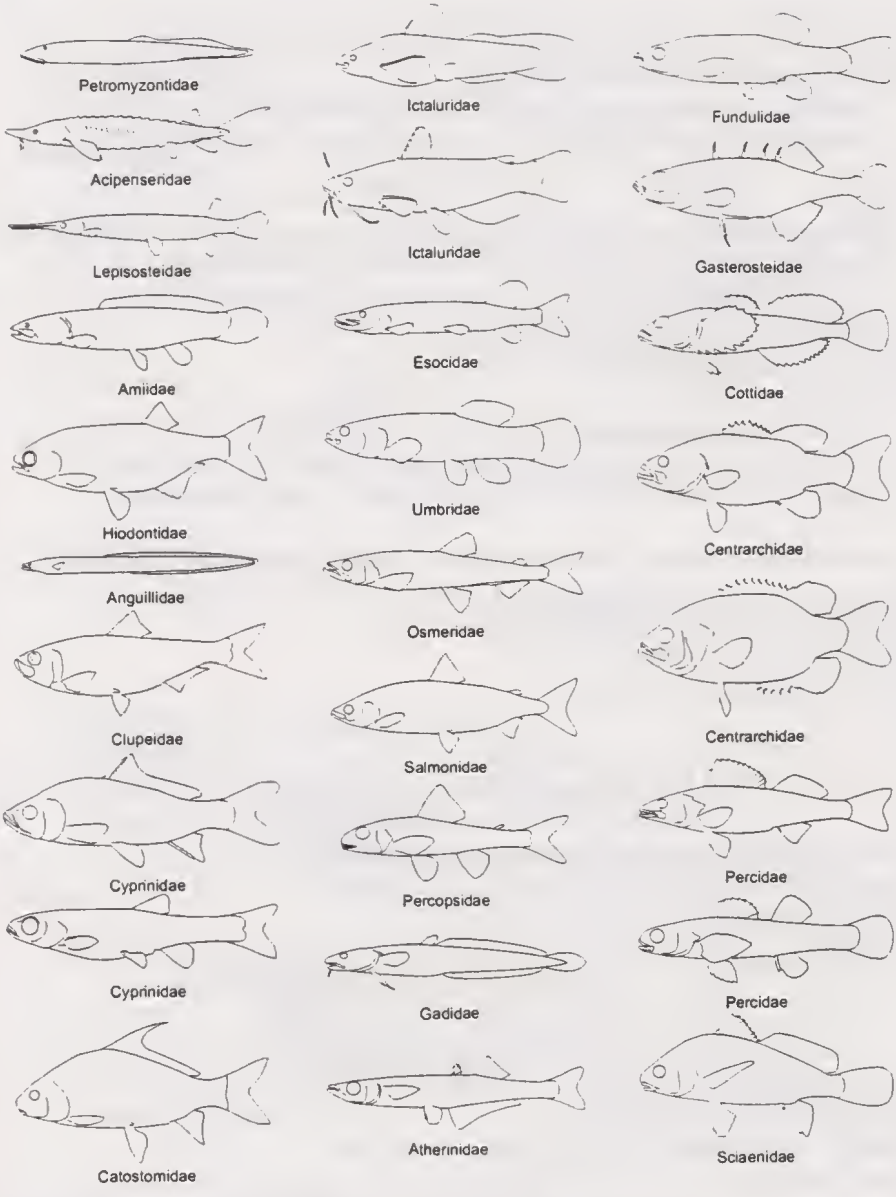

Figure 1. Pictorial key to families (note body form; number, size, position, and shape of fins; position and shape of mouth and gill opening; presence/absence of barbels; eye size and position).

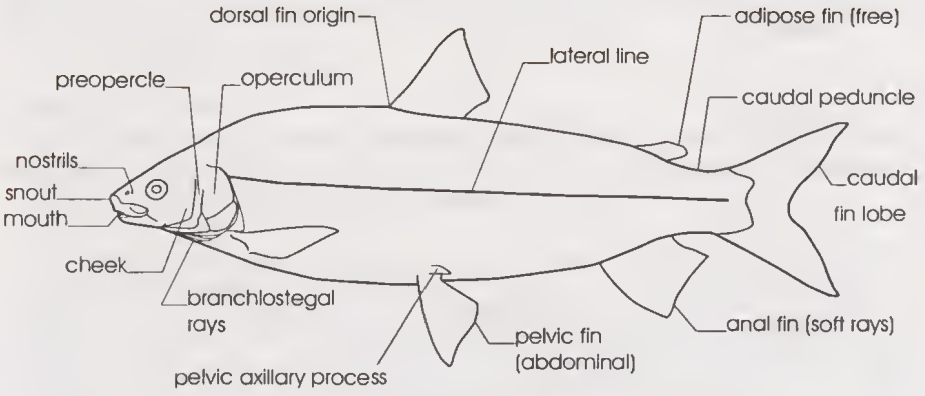

Figure 2. Characters of a soft-rayed fish.

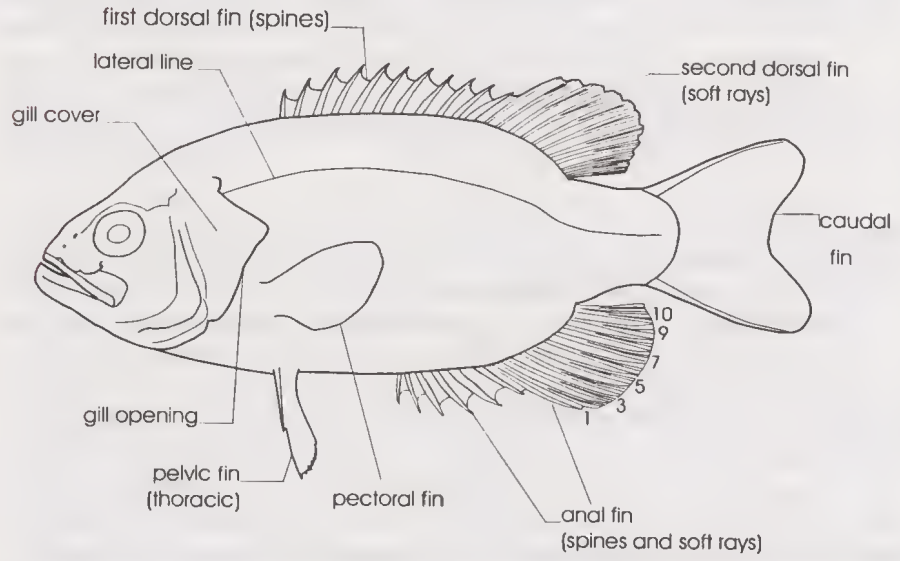

Figure 3. Characters of a spiny-rayed fish.

Key to Families

1. Seven pairs of pored gill openings; no pectoral or pelvic fins; a median nostril; "mouth" a rounded, suctorial disc in adults, or a fleshy oral hood in larvae (or ammocoetes) ..... **Petromyzontidae** (Lampreys/Lamproies)

   One external gill opening on each side of head; at least pectoral fins present and usually pelvic fins too; paired nostrils; mouth bounded by upper and lower jaws 2

2. Caudal fin lobes strongly asymmetrical, the upper lobe much larger than the lower and containing the vertebral column; 2 pairs of barbels in front of subterminal (under head) mouth; 5 rows of bony plates along body .... **Acipenseridae** (Sturgeons/Esturgeons)
   Acipenser fulvescens (Lake Sturgeon/Esturgeon Jaune)
   [Ottawa and Gatineau rivers]

   Caudal fin lobes, when present, mostly symmetrical externally, no extensive presence of vertebral column in lobes; barbels, if present, not anterior to mouth; body without 5 rows of plates, with regular scales, or no scales 3

3. Gular plate present (large bony structure on lower surface of head between jaws); anterior nostrils tubular and near snout tip .... **Amiidae** (Bowfins/Poissons-Castors)
   Amia calva (Bowfin/Poisson-Castor)
   [Ottawa River]

   No gular plate; anterior nostrils not as above 4

4. No pelvic fins; body extremely elongate; dorsal, caudal and anal fins continuous; scales so small as not to be readily visible .... **Anguillidae** (Freshwater Eels/Anguilles d'Eau Douce)
   Anguilla rostrata (American Eel/Anguille d'Amérique)
   [Ottawa, Gatineau and Mississippi rivers]

   Pelvic fins present; body not extremely elongate; dorsal, caudal and anal fins separate; scales absent, or present and obvious 5

5. Scales like armour, exceptionally thick, close fitting, non-overlapping and diamond-shaped; jaws very elongate and narrow, longer than rest of head, armed with teeth ..... **Lepisosteidae** (Gars/Lépisostés)
   Lepisosteus osseus (Longnose Gar/Lépisosté Osseux)
   [Ottawa River]

   Scales thin and overlapping, or absent; jaws not as above 6

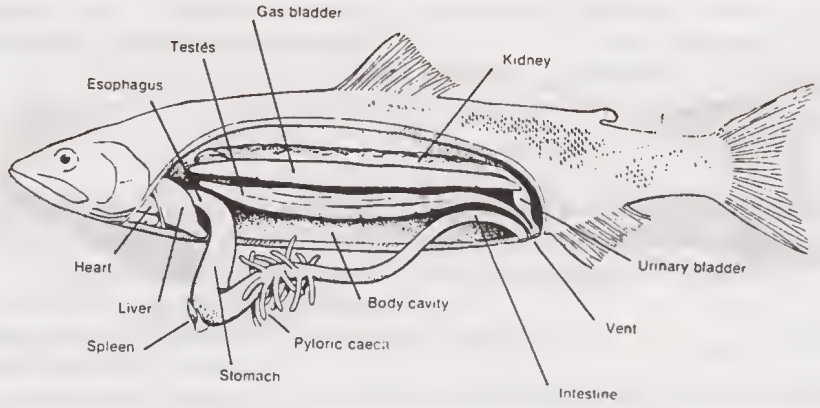

Figure 4. Internal anatomy.

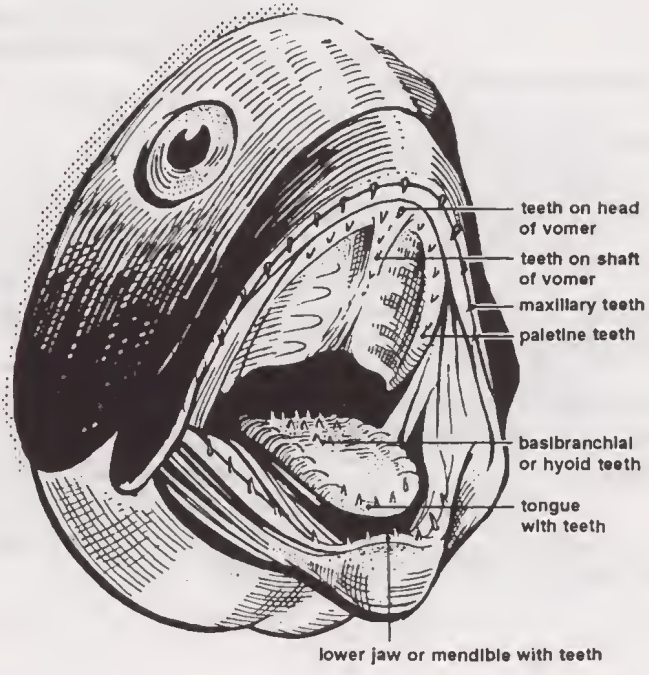

Figure 5. Tooth arrangement.

6. Second spine of anal fin massive; lateral line runs to end of caudal fin; head canals greatly enlarged ..... **Sciaenidae** (Drums/Tambours)
Aplodinotus grunniens (Freshwater Drum/Malachigan)
[Ottawa, Gatineau and Rideau rivers]

Anal fin without spine, or spine not massive; lateral line when present not extending to end of caudal fin; head canals not greatly enlarged 7

7. Soft dorsal fin preceded by 2-12 isolated spines, not joined by a membrane ..
..... **Gasterosteidae** (Sticklebacks/Épinoches)

Dorsal fin without spines or, if spines present, not isolated but joined by a membrane 8

8. Single barbel on chin tip; pelvic fins clearly inserted anterior to pectoral fin origin ..... **Gadidae** (Cods/Morues)
Lota lota (Burbot/Lotte)
[Ottawa, Gatineau and Mississippi rivers]

No chin barbel (other barbels may be present on the jaws); pelvic fins under or behind pectoral fin origin 9

9. Adipose fin present 10
Adipose fin absent 13

10. Scales absent; 4 pairs of long barbels present; very strong spine-like rays in the dorsal and pectoral fins .... **Ictaluridae** (Bullhead Catfishes/Barbottes)

Scales present; no barbels, or barbels not in 4 pairs; no very strong fin spines 11

11. Pelvic fin anterior, overlapped by pectoral fin; mouth under head; scales weakly ctenoid (figure 6b) **(minute spines at posterior margin)**; teeth very fine, difficult to see ..... **Percopsidae** (Trout-Perches/Omiscos)
Percopsis omiscomaycus (Trout-Perch/Omisco)
[widespread]

Pelvic fin more posterior on abdomen, not overlapped by pectoral fin; mouth at tip of head; scales cycloid (figure 6a) **(no minute spines)**; teeth small to large but easy to see 12

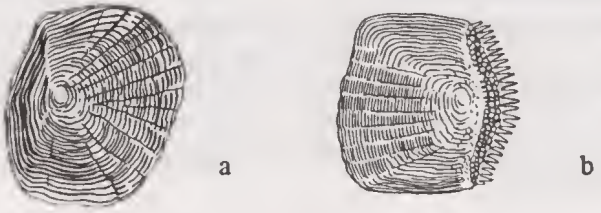

Figure 6. Scale types: a, cycloid; b, ctenoid.

12. Pelvic axillary process (**flap at fin base**) absent; pelvic fin origin below or in front of dorsal fin origin ..... **Osmeridae** (Smelts/Éperlans)
Pelvic axillary process present; pelvic fin origin behind dorsal fin origin .... **Salmonidae** (Salmons/Saumons)

13. Pelvic fins abdominal (**about mid-body, behind the pectoral fin tip**); one dorsal fin; no true fin spines (*Cyprinus carpio* and *Carassius auratus* have a single anterior spine-like ray in the dorsal and anal fins) 14
Pelvic fins thoracic (**anterior, under pectoral fin**); two dorsal fins or, if one fin, then several spines anteriorly 21

14. Gill openings narrow (figure 7b) (**gill membranes joined to isthmus, the area between the gill openings on the lower head surface**) 15
Gill openings wide (figure 7a) (**gill membranes not joined to isthmus**) 16

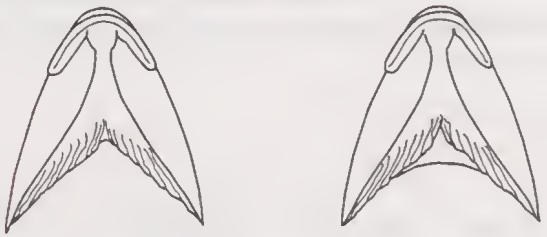

Figure 7. Gill openings: a, wide; b, narrow.

15. Lips thick and fleshy; mouth under head; pharyngeal teeth (**throat teeth, lying behind the gill arches and accessible via the gill opening by dissection**) (figure 8) in a single row, numerous, more than 15; anal fin posterior, the distance between the posterior opercle edge to the anal fin origin clearly greater than the distance from anal fin origin to the caudal fin base ..... **Catostomidae** (Suckers/Meuniers)
Lips thin; mouth usually at tip of head (under head in *Rhinichthys cataractae* but this species has 2 rows of pharyngeal teeth, 1-4 in each row); pharyngeal teeth in 0-3 rows but never more than 5 in a row; anal fin more anterior, the distance between the posterior opercle edge to the anal fin origin marginally greater than the distance from anal fin origin to the caudal fin base ..... **Cyprinidae** (Carps/Carpes)

16. Scales on top of head 17
Top of head scaleless 20

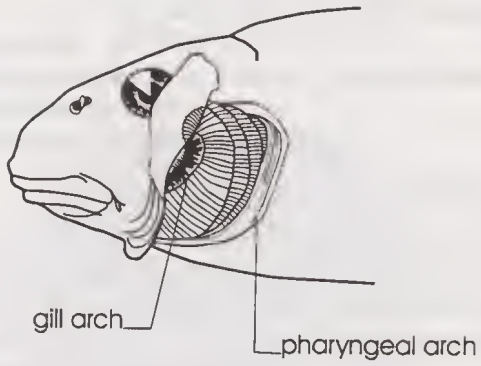

Figure 8. Gill arch.

17. Groove between upper lip and snout (figure 9b) **(premaxillaries protractile - anteriormost bones of upper jaw can extend)** 18
No groove (figure 9a) (premaxillaries not protractile) 19

a b

Figure 9. Groove between upper lip and snout: a, absent; b, present.

18. One dorsal fin; anal fin with 9-13 rays, no spine .....
..... **Fundulidae** (Killifishes/Fondules)
Fundulus diaphanus (Banded Killifish/Fondule Barré)
[widespread]
Two dorsal fins (the first small and easily missed) over the anal fin; anal fin with 20-27 rays after a spine **Atherinidae** (Silversides/Poissons d'Argent)
Labidesthes sicculus (Brook Silverside/Crayon d'Argent)
[Ottawa and Rideau rivers]

19. Snout a duck-bill shape; caudal fin forked; strong teeth; lateral line scales 105-176 ..... **Esocidae** (Pikes/Brochets)

Snout normal-shaped; caudal fin rounded; teeth minute; lateral line scales 30-37 ..... **Umbridae** (Mudminnows/Umbres)

Umbra limi (Central Mudminnow/Umbre de Vase) [widespread]

20. Dorsal fin over pelvic fins; no obvious teeth on tongue; lateral line absent; belly with scutes (**sharp scales**); gill rakers (figure 8) (**bony projections on the inner side of the gill arch**) numerous and elongate; anal fin rays 15-21; nostrils near eye ..... **Clupeidae** (Herrings/Harengs)

Alosa pseudoharengus (Gaspereau/Gaspareau) [Rideau River]

Dorsal fin over anal fin; strong teeth present on tongue; lateral line present; no belly scutes; gill rakers few and knob-like; anal fin rays 26-31; nostrils near snout tip ..... **Hiodontidae** (Mooneyes/Laquaiches)

Hiodon tergisus (Mooneye/Laquaiche Argentée) [Ottawa, Gatineau and Mississippi rivers]

21. Body mostly naked (some minute prickles), no scales; pectoral fin large and fan-shaped; head broad and flattened ..... **Cottidae** (Sculpins/Chabots)

Cottus bairdii (Mottled Sculpin/Chabot tacheté) [widespread]

Body scaled; pectoral fin not as large; head not broad and flattened 22

22. One to two anal fin spines; two dorsal fins at most slightly joined at base ..... **Percidae** (Perches/Perches)

Three or more anal fin spines; one dorsal fin (comprising joined spiny and soft parts except almost divided in two at base in *Micropterus salmoides*) ..... **Centrarchidae** (Sunfishes/Crapets)

Key to Adult Petromyzontidae
(Lampreys/Lamproies)

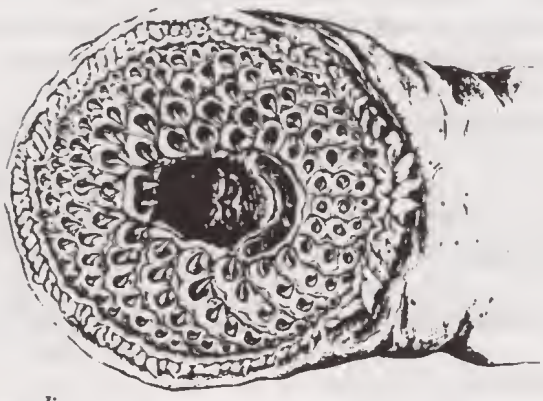

Figure 10. Lamprey disc.

Adults have teeth in a sucking disc which is lined around the rim by fimbriae (**short, thread-like filaments**), and they have well-developed eyes. They swim free, or are attached as external parasites to other fish, or may hide under rocks and debris.

1. Two distinct dorsal fins; trunk myomeres (**muscle blocks**) 63-74 . . . . . *Lampetra appendix*(American Brook Lamprey/Lamproie de l'Est) [Ottawa and Gatineau rivers]

   Dorsal fin single with at most a slight dip at mid-point, dip not reaching body; trunk myomeres 47-58 2

2. Teeth small and blunt; lateral line organs lacking pigmentation; gut shrivelled, diameter minute; small, length up to about 25.4 cm and often 15 cm or less . . *Ichthyomyzon fossor* (Northern Brook Lamprey/Lamproie du Nord) [Ottawa River]

   Teeth large, sharp and curved; lateral line organs obviously pigmented; gut well-developed (but atrophies at spawning); larger, length up to about 38 cm 3

3. Circumoral teeth usually unicuspid; trunk myomeres 47-55 (usually 49-52) . . . . . *Ichthyomyzon unicuspis* (Silver Lamprey/Lamproie Argentée) [Ottawa and Gatineau rivers]

   Circumoral teeth usually bicuspid; trunk myomeres 49-56 (usually 51-54) . . . . . *Ichthyomyzon castaneus* (Chestnut Lamprey/Lamproie Brune) [Brewery Creek]

Key to Larval Petromyzontidae
(Lampreys/Lamproies)

Larval lampreys or ammocoetes lack teeth and have a fleshy hood enclosing the oral opening and eyes are weakly developed. They live buried in sediment with the head protruding and are not usually free-swimming.

1. Two distinct dorsal fins; trunk myomeres 63-74 . . . . . *Lampetra appendix*
(American Brook Lamprey/Lamproie de l'Est)
Dorsal fin single with at most a slight dip at mid-point, dip not reaching body; trunk myomeres 47-58 2

2. Lateral line organs black . . . . . *Ichthyomyzon castaneus*
(Chestnut Lamprey/Lamproie Brune)
Lateral line organs unpigmented 3

3. Caudal fin and head heavily pigmented . . . . . *Ichthyomyzon unicuspis*
(Silver Lamprey/Lamproie Argentée)
Caudal fin and head weakly pigmented . . . . . *Ichthyomyzon fossor*
(Northern Brook Lamprey/Lamproie du Nord)

Key to Cyprinidae
(Carps/Carpes)

1. Dorsal and anal fins with a strong, serrated, anterior spine-like ray; dorsal fin branched rays 14-23 2
Dorsal and anal fins without a spine-like ray; dorsal fin branched rays 6-8 . . 3

2. Two pairs of barbels; total gill rakers 21-27; pharyngeal teeth in three rows with usually 1,1,3 teeth on each side . . . . . *Cyprinus carpio*
(Common Carp/Carpe)
[Ottawa and Rideau rivers]
No barbels; total gill rakers 37-50; pharyngeal teeth in one row with usually 4 teeth on each side . . . . . *Carassius auratus*
(Goldfish/Cyprin Doré)
[various ponds in Ontario]

3. No groove between the snout and lip (premaxillaries not protractile) (figure 9a); snout projects far over ventral mouth; barbel at mouth corner (note spawning male *Pimephales notatus* develop a barbel-like structure at the rear tip of the upper jaw) . . . . . *Rhinichthys cataractae*
(Longnose Dace/Naseux de Rapides)
[widespread]

A groove between the snout and lip (premaxillaries protractile) (figure 9b); snout not markedly projecting and mouth at head tip; no barbel at mouth corner 4

4. Small, short, flat, and often triangular barbel present in the groove between upper lip and snout, just anterior to mouth corner (often absent on one or both sides in *Margariscus margarita*, absent on both sides in 23% of over 1000 individuals from across North America; usually present in the other two species and in some fish from large samples of all species; if the barbel is absent on both sides, *Margariscus margarita* is distinguished by the high scale count in a complete lateral line, short s-shaped gut, pharyngeal teeth in main rows 5-4, silvery peritoneum (**lining of body cavity, belly must be cut open to see**), small mouth and lack of unique characters listed for other carp family members) 5

No such barbel 7

5. Lateral line scales 43-50; flank scales each with an anterior patch of pigment but overall colour is bright silvery ..... *Semotilus corporalis*
(Fallfish/Ouitouche)
[widespread]

Lateral line scales 46-79, usually 52-75; flank scales without an anterior patch of pigment, overall colour not bright silvery 6

6. Lateral line scales 47-66, usually 52-63; distinctive black spot at anterior dorsal fin base; body not spotted, scales outlined with pigment; mouth large, corner at level of front of eye or behind ..... *Semotilus atromaculatus*
(Creek Chub/Mulet à Cornes)
[widespread]

Lateral line scales 46-79, usually 65-75; no black spot at anterior dorsal fin base; body usually appears spotted or speckled black and brown; mouth small, corner not reaching level of front of eye .. *Margariscus margarita*
(Pearl Dace/Mulet Perlé)
[widespread]

7. Lateral line scales 63 or more 8

Lateral line scales 57 or less 9

8. Peritoneum black (if silvery with dark speckles, flap-like barbel may have been missed or is absent return to couplet 5); mouth small, extending to, or just past, the nostrils; 2 extra major loops in the gut; a stripe or series of spots between a dark upper flank stripe and the back; pharyngeal teeth in one row ..... **Phoxinus eos*
(Northern Redbelly Dace/Ventre Rouge du Nord)
[widespread]

Peritoneum black (if silvery with dark speckles, flap-like barbel may have been missed or is absent return to couplet 5); mouth large, extending to, or just past, the anterior eye margin; short s-shaped gut; no second stripe or spots as above; pharyngeal teeth in two rows ..... ***Phoxinus neogaeus***
(Finescale Dace/Ventre Citron)
[widespread]

* Note: These two species commonly hybridize; diploid and triploid hybrids are reported from the NCR in Hawley (= Holly) Lake, Québec. Hybrids may occur in the absence of one parent species and are mostly female clones (Dawley *et al.*, 1987; Dawley and Goddard, 1988). Character states in the key may not allow distinction of species.

9. Lateral line strongly decurved with 39-57 scales; naked fleshy keel between the pelvic fins and the anus on the belly midline; anal fin branched rays 7-18, usually 11-13 ..... *Notemigonus crysoleucas*
(Golden Shiner/Chatte de l'Est)
[widespread]

Lateral line not strongly decurved; belly scaled at midline, no naked fleshy keel; anal fin branched rays usually 10 or less 10

10. Second dorsal fin unbranched ray short and stout, separated from next ray by a relatively wide membrane in adults (first ray is minute and difficult to see); back flattened; dark to dusky blotch at anterior dorsal fin above base in adults; scales in front of dorsal fin on back smaller and more crowded than flank scales, not in regular rows 11

Second dorsal fin unbranched ray thin and splint-like, closely attached to next ray; back more rounded; no blotch above anterior dorsal fin base; scales in front of dorsal fin on back usually large and distinct, more like flank scales and in regular rows 12

11. Lateral line usually incomplete, not extending along whole flank; mouth at tip of body; caudal fin base spot faint to absent; body deep, depth less than 4.0 times in standard length (**tip of snout to end of vertebral column or tail base**); dorsal fin origin above or slightly anterior to pelvic fin origin; gill rakers 14 or more ..... *Pimephales promelas*
(Fathead Minnow/Tête-de-Boule)
[widespread]

Lateral line complete; mouth under snout; caudal fin base spot well-developed; body more slender, more than 4.5 times in standard length; dorsal fin origin posterior to pelvic fin origin; gill rakers 11 or fewer ..... *Pimephales notatus*
(Bluntnose Minnow/Ventre-Pourri)
[widespread]

12. Gut long with numerous coils (figure 11a); mouth almost horizontal, below tip of head, with a long diagonal fold above and below its corner 13
Gut short with an s-shaped loop (figure 11b); mouth oblique, at tip of head (below tip in *Notropis hudsonius* but without long diagonal fold 14

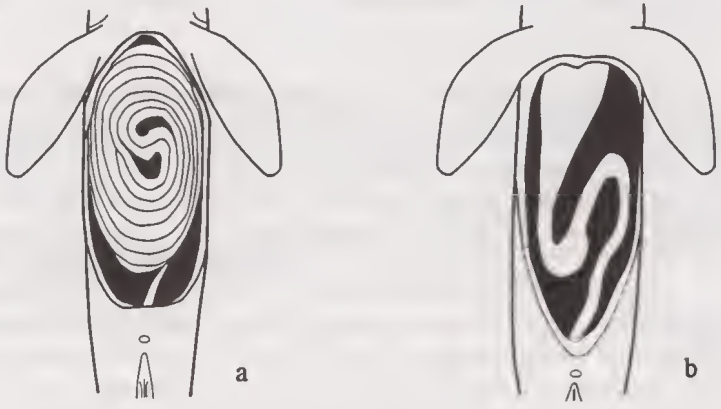

Figure 11. Internal gut arrangement: a, with coils; b, s-shaped loop.

13. Colour brassy in adult, dull silver in young; dorsal fin margin rounded; 14-20 radii (rarely 11-12) on adult scales (**radii are grooves radiating from the scale centre**); usually 5-6 scales between lateral line and pelvic fin; no thin black line along flank ..... *Hybognathus hankinsoni*
(Brassy Minnow/Méné Laiton)
[widespread]
Colour bright silvery; dorsal fin margin falcate (**sickle-shaped**) and pointed; 12 or less radii on adult scales (range 5-12); usually 4 scales between lateral line and pelvic fins; thin black line along flank lying partly over dark stripe..... *Hybognathus regius*
(Eastern Silvery Minnow/Méné d'Argent de l'Est)
[Ottawa and Rideau rivers]

14. Anal fin branched rays 8-11, rarely 7 (sometimes 7 in *Luxilus cornutus* but this species has anterior lateral line scales more than twice as high as wide); pharyngeal tooth formula usually 2,4-4,2 15
Anal fin branched rays 6-7, rarely 8; pharyngeal tooth formula usually 1,4-4,1 or 4-4 (2,4-4,2 in *Notropis hudsonius* but this species has a distinctive black spot on the caudal fin base) 17

15. Exposed part of anterior lateral line scales more than twice as high as wide; dorsal fin origin over or in front of the level of the pelvic fins insertion (posteriomost point of attachment of fin base) ..... *Luxilus cornutus*
(Common Shiner/Méné à Nageoires Rouges)
[widespread]

Exposed part of anterior lateral line scales about equal in width and depth (about twice as high as wide in *Notropis volucellus* but this species has black pigment around anus and anal fin base); dorsal fin origin behind the level of the pelvic fins insertion 16

16. Pectoral fin rays usually 15-17; snout length less than orbit (bony eye socket) diameter; anterior lateral line pores not outlined by pigment; predorsal stripe weak; flank pigment ends above lateral line anteriorly; distal anal fin margin concave; dorsal fin pointed, anterior ray tip reaching well beyond posterior ray tip when fin depressed ..... *Notropis atherinoides*
(Emerald Shiner/Méné Émeraude)
[widespread]

Pectoral fin rays usually 11-14; snout length greater than orbit diameter in fish longer than 3.5 cm in standard length; anterior lateral line pores outlined above and below by pigment spots giving a "stitched" appearance; predorsal stripe distinct; flank pigment ends at or below lateral line anteriorly; distal anal fin margin straight; dorsal fin not as pointed, anterior ray tip not reaching posterior ray tip when fin depressed ..... *Notropis rubellus*
(Rosyface Shiner/Tête Rose)
[widespread]

17. Dorsal fin with black blotch on last 2-4 membranes (may be weakly expressed or absent in young); snout pointed; eye small, less than one-quarter head length in adults (at least less than one-third) ..... *Cyprinella spiloptera*
(Spotfin Shiner/Méné Bleu)
[Bear Creek, Ottawa River]

Dorsal fin without posterior blotch; snout rounded; eye more than one-quarter head length in adults 18

18. Black spot at base of caudal fin large and obvious (may be obscured by silvery scales in live fish); dorsal and anal fins falcate ..... *Notropis hudsonius*
(Spottail Shiner/Queue à Tache Noir)
[widespread]

No obvious spot at caudal fin base; dorsal and anal fins convex or straight . 19

19. Flank stripe strongly developed, extending onto head and to snout 20
Flank stripe weakly developed, not extending onto snout 21

20. Chin black (as is snout); mid-flank stripe often a strong black zig-zag; usually 2 rows of pharyngeal teeth ..... *Notropis heterodon*
(Blackchin Shiner/Menton Noir)
[widespread]

Chin not black (but snout black); anterior mid-flank stripe composed of a series of crescents, tips pointing rearwards; usually 1 row of pharyngeal teeth . ..... *Notropis heterolepis*
(Blacknose Shiner/Museau Noir)
[widespread]

21. Area around anus and base of anal fin weakly pigmented; anal fin branched rays usually 6 (range 5-7); flank pigment not extending below lateral line; thin stripe on mid-line of back ..... *Notropis ludibundus*
(Sand Shiner/Méné Paille)
[Ottawa, Jock and Mississippi rivers]

Area around anus and base of anal fin black; anal fin branched rays usually 7 (range 7-8); flank pigment extends below lateral line; no distinct stripe on mid-line of back ..... *Notropis volucellus*
(Mimic Shiner/Méné Pâle)
[widespread]

Key to Catostomidae
(Suckers/Meuniers)

1. Dorsal fin long, with 22-32 major rays; anterior rays elongated into a high, sickle-shape ..... *Carpiodes cyprinus*
(Quillback/Couette)
[Ottawa and Gatineau rivers]

Dorsal fin short, with 9-18 major rays; anterior rays not markedly elongated 2

2. Scales small numbering 53 or more (usually 58 or more) in the lateral line; body rounded in cross section 3

Scales large numbering 48 or less in the lateral line; body compressed in cross section 4

3. Scales in lateral line 91-120 ..... *Catostomus catostomus*
(Longnose Sucker/Meunier Rouge)
[Ottawa River, rare to absent]

Scales in lateral line 53-85 (usually 58-68) ..... *Catostomus commersonnii*
(White Sucker/Meunier Noir)
[widespread]

4. Scales around caudal peduncle (**tail stem in front of tail fin**) usually 15-16, rarely 12-13; dorsal fin distal margin usually strongly convex in adults (straight in young); snout laterally mottled; mouth more terminal (**terminal = at tip of snout**) than other species ..... *Moxostoma valenciennesi*
(Greater Redhorse/Suceur Jaune)
[Ottawa, Mississippi and Rideau Rivers, Bear Creek]

Scales around caudal peduncle usually 12-13, rarely 15-16; dorsal fin distal margin slightly convex (may be obviously convex in adult *Moxostoma anisurum*), straight, emarginate, or falcate; snout not mottled 5

5. Lower lip narrow (figure 12b), posterior margins of each half meet at an acute angle centrally; lower lip with transverse lines on folds or plicae, forming irregular-sized, oblong papillae; lower lip narrows abruptly before joining upper lip; maximum body depth into body length (head tip to end of scales) 3.5 times or less; dorsal fin rays usually 14-15 (range 12-17); caudal fin dusky to silver; flank blotches pale to absent ..... *Moxostoma anisurum*
(Silver Redhorse/Suceur Blanc)
[widespread]

Lower lip broader(figure 12a), posterior margins of each half meet at an obtuse angle centrally, may be almost straight (rarely acute at about 80 degrees); lower lip without transverse lines on folds or plicae (large, oval papillae may be found posteriorly on the lower lip of large *Moxostoma macrolepidotum*); lower lip thick at corners; maximum body depth into body length (head tip to end of scales) 3.7 times or more; dorsal fin rays usually 13 or less; caudal fin pink to blood red (paler in young); 3-4 flank blotches distinct 6

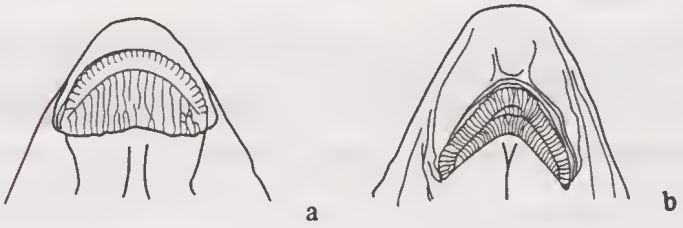

Figure 12. Lower lip: a, broad; b, narrow.

6. Pharyngeal arch strongly developed with 6-9, large molar teeth on lower half of tooth row; distal dorsal fin margin rounded, straight, or slightly concave; long head, less than 4.3 times in standard length; mouth large; gill rakers with spots at base or on lower part of raker .... *Moxostoma carinatum*
(River Redhorse/Suceur Ballot)
[Ottawa, Gatineau and Mississippi rivers]

Pharyngeal arch not strongly developed, teeth comb- or blade-like and numerous, more than 11 on lower half of tooth row; distal dorsal fin margin falcate, or s-shaped; short head, 4.3-5.4 times in standard length; mouth small; no gill raker spots ..... *Moxostoma macrolepidotum*
(Shorthead Redhorse/Suceur Rouge)
[widespread]

Key to Ictaluridae
(Bullhead Catfishes/Barbottes)

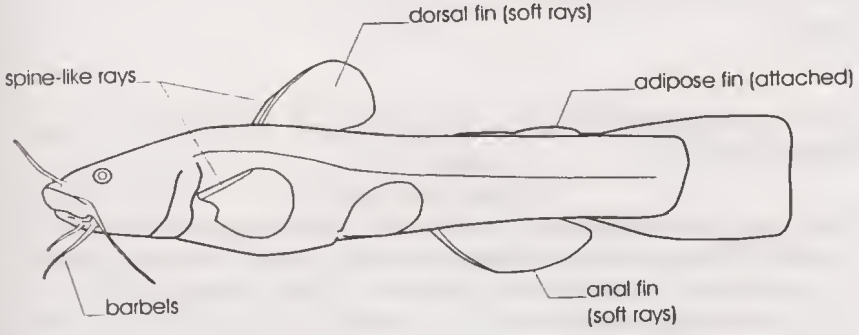

Figure 13. External characters of a catfish

1. Adipose fin long, closely associated with the caudal fin, and attached to the back; small fishes, maximum size 11.5-31.2 cm, usually 17.3 cm or less 2

Adipose fin short, remote from the caudal fin, and posteriorly free from the back; large fishes, maximum size 46.5-120.2 cm 4

2. Premaxillary band of teeth (**in anterior roof of mouth**) with lateral processes extending backwards (figure 14b) ; posterior teeth of pectoral fin spine-like ray weaker than anterior teeth; back with pale areas behind head and at posterior end of dorsal fin; pectoral fin radials (**bones in fin base - dissection or x-ray required**) never fused ..... *Noturus flavus*
(Stonecat/Barbotte des Rapides)
[Rideau River]

Premaxillary band of teeth without lateral processes extending backwards (figure 14a); posterior teeth of pectoral fin spine-like ray longer than anterior teeth or absent; back a uniform grey; pectoral fin radials usually fused 3

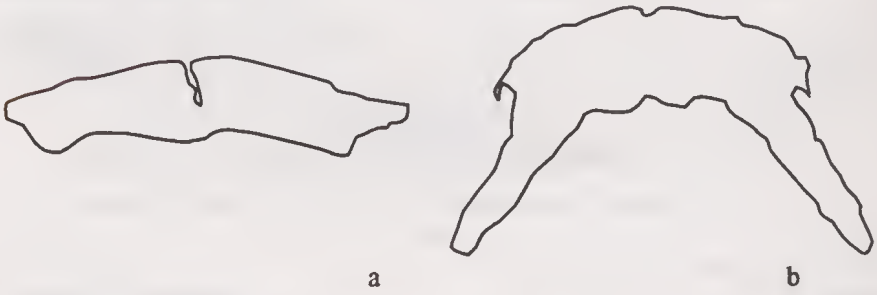

Figure 14. Premaxillary band of teeth without (a) and with (b) lateral processes extending backwards.

3. Body short, stout and tadpole-shaped; mouth terminal; pectoral spine-like ray without posterior teeth; branched pectoral rays 4-9 but usually 5-7 and modally 6; branched pelvic rays 4-9 but usually 7; typically 10 preoperculomandibular canal pores (**canal runs from lower jaw onto the preopercle bone**); dorsal, caudal and anal fins without a black distal margin; dark streak along mid-flank at intersection of dorsal and ventral muscle blocks ..... *Noturus gyrinus*
(Tadpole Madtom/Chat-Fou Brun)
[widespread]

Body elongate and slender; mouth subterminal; pectoral spine-like ray with posterior teeth; branched pectoral rays usually 8; branched pelvic rays usually 8; 11 preoperculomandibular canal pores; dorsal, caudal and anal fins with a black distal margin; no flank streak ..... *Noturus insignis*
(Margined Madtom/Chat-Fou Livré)
[Gatineau Park and Gatineau River]

4. Caudal fin with a strong fork; almost continuous surface bony ridge on back between back of head and dorsal fin origin; mouth corner barbels more than 3 times longer than nostril barbels ..... *Ictalurus punctatus*
(Channel Catfish/Barbue de Rivière)
[Ottawa, Gatineau and Mississippi rivers]

Caudal fin not forked, but truncate (**square-cut**) to rounded; back more fleshy, soft, depressible area before dorsal fin; mouth corner barbels about 2 times longer than nostril barbels 5

5. Chin barbels yellow to white or pinkish, upper barbels yellow to grey; anal fin touches caudal fin when pressed to the body; total anal rays 24-28; distance between lower jaw notch and tip of lower jaw much greater than distance between lower jaw notch and isthmus; fins (except pelvics and adipose) with black distal margins ..... *Ameiurus natalis*
(Yellow Bullhead/Barbotte Jaune)
[Ottawa River]

All barbels brown to black (bases of lower ones may be pale in young); anal fin not reaching caudal fin when pressed to body; total anal rays 19-24; distance between lower jaw notch and tip of lower jaw about equal to distance between lower jaw notch and isthmus; no fins with black distal margins ..... *Ameiurus nebulosus*
(Brown Bullhead/Barbotte Brune)
[widespread]

Key to Esocidae
(Pikes/Brochets)

1. Submandibular pores 9-11 (usually 5 on each lower jaw) (figure 15); cheeks **(the area between the eye and the preoperculum)** fully scaled; flanks dark with lighter, wavy bars in young, or rows of light, bean-shaped spots in adults ..... *Esox lucius*
(Northern Pike/Grand Brochet)
[widespread]

Submandibular pores 12-20 (usually 6-10 on each lower jaw) (figure 15); cheeks only scaled on upper half; flanks light to silvery with darker spots, blotches or oblique bars ..... *Esox masquinongy*
(Muskellunge/Maskinongé)
[widespread]

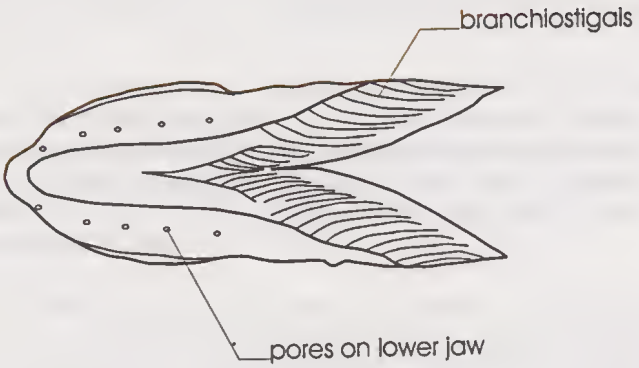

Figure 15. Submandibular pores.

Key to Osmeridae
(Smelts/Éperlans)

1. Total gill rakers 32-36 (usually 33-36); orbit diameter 4.4-6.5% of standard length; small, standard length less than 135 mm . . . *Osmerus spectrum*
(Pygmy Smelt/Éperlan Nain)
[Meech Lake]

Total gill rakers 26-37 (usually 28-32); orbit diameter 7.0-11.3% of standard length; larger, standard length can exceed 200 mm . . . *Osmerus mordax*
(Rainbow Smelt/Éperlan Arc-en-Ciel)
[widespread]

Key to Salmonidae
(Salmons/Saumons)

1. Teeth in lower jaw absent except in youngest fish; mouth small, lower jaw short, not extending back to mid-eye; scales large, 13 or less from dorsal fin origin to lateral line; caudal fin clearly forked; overall colour silvery to white 2

Teeth in lower jaw strong and conical; mouth large, lower jaw long, extending back to or past mid-eye; scales small, 19 or more from dorsal fin origin to lateral line; caudal fin usually truncate (obvious fork only in *Salvelinus namaycush* and *Salmo salar*); overall colour darker with spots and vermiculations 3

2. Mouth at tip of head; gill rakers 14-18 on upper arch; upper lip profile slopes forward in line with forehead (snout tip pointed viewed laterally) . . . . . *Coregonus artedi*
(Lake Cisco/Cisco de Lac)
[Québec lakes]

Mouth overhung by snout; gill rakers 7-12 on upper arch; upper lip profile vertical or bent back from line of forehead (snout tip rounded viewed laterally) . . . . . *Coregonus clupeaformis*
(Lake Whitefish/Grande Corégone)
[Québec lakes]

3. Head and body with black spots (*Salmo salar* has red flank spots when young); pelvic and anal fins without white anterior margin; scales stand out; vomer bone (in centre of roof of mouth) flat, with teeth in 2 rows on shaft 4

Body with light spots of white, cream, pink, or red; pelvic and anal fins with conspicuous white anterior margin; scales inconspicuous; vomer bone deeper, without teeth on shaft 7

4. Caudal fin with radiating rows of black spots; body without red spots 5
Caudal fin lacking spots, if present not in rows; body may have red spots . . 6

5. Orange to red mark on each inner lower jaw (the "cutthroat"); small teeth on tongue base; no pink flank stripe (or if present, faint and copper-orange) . . . . . *Oncorhynchus clarkii*
(Cutthroat Trout/Truite Fardée)
[Québec lakes and rivers]

No cutthroat mark; no basal tongue teeth; usually pink (or red to orange) flank stripe . . . . . *Oncorhynchus mykiss*
(Rainbow Trout/Truite Arc-en-Ciel)
[Québec lakes and rivers]

6. Opercular area with only 2-3 large spots; upper jaw not extending back much beyond eye (centre of eye in young); teeth on vomer bone weak; adipose fin without red or orange, adults lack red on flank (red present in young between parr marks (dark bars on flank of young fish) and as a halo around dark spots in spawning fish); dark blotches on caudal fin if present not restricted to upper lobe; caudal fin deeply forked, medial rays less than half length marginal rays . . . . . *Salmo salar*
(Atlantic Salmon/Saumon de l'Atlantique)
[Québec lakes]

Opercular area with many spots; upper jaw extending back well beyond eye (posterior half of eye in young); teeth on vomer bone strong; adipose fin often margined red or orange, adults often with rust-red flank spots with a blue halo; blotches on caudal fin if present only on upper lobe; caudal fin slightly forked, medial rays more than half the length of marginal rays . . . . . *Salmo trutta*
(Brown Trout/Truite Brune)
[Québec lakes and rivers]

7. Caudal fin deeply forked; spots on flank sometimes irregular, bean-shaped whitish or cream (rarely orange); pyloric caeca (**finger-like blind sacs attached to the junction of the stomach and intestine**) about 90-200; 7-12 parr marks, irregular, often interrupted, and narrow. . . . . *Salvelinus namaycush*
(Lake Charr (Trout)/Touladi)
[Québec lakes, Gatineau River]

Caudal fin emarginate or square when spread out (may be forked in some *Salvelinus alpinus* populations); orange, pink or red spots on flank; pyloric caeca 13-75 8

8. Dorsal and caudal fins and back with vermiculations (**dark wavy lines**); pelvic and anal fins with snow white leading edge set off by black behind; tip of lower jaw and roof of mouth black; flank spots usually surrounded by a blue halo; basibranchial teeth usually absent (on **floor of mouth between gills**); 8-10 regularly arranged parr marks along flank in young . . . . . *Salvelinus fontinalis*
(Brook Charr (Trout)/Omble de Fontaine)
[widespread in Québec]

Dorsal and caudal fins without vermiculations; white leading edge not usually set off by black behind; tip of lower jaw and roof of mouth whitish; no blue halos around flank spots; basibranchial teeth present and numerous; 10-15 parr marks in young irregular and not clearly defined . . . . . *Salvelinus alpinus*
(Arctic Charr/Omble Chevalier)
[Québec lakes]

Key to Gasterosteidae
(Sticklebacks/Épinoches)

1. Short dorsal fin spines 7-12 (usually 9), alternately sloping left and right . . . . *Pungitius pungitius*
(Ninespine Stickleback/Épinoche à Neuf Épines)
[Québec lakes]

Short or long dorsal fin spines 3-7, in median line 2

2. Short dorsal fin spines 4-7; short pelvic spines (both less than eye diameter); scutes (**vertical bony plates on flanks**) weakly developed . . . . . *Culaea inconstans*
(Brook Stickleback/Épinoche à Cinq Épines)
[widespread]

Long dorsal fin spines 3; long pelvic spines (both exceeding eye diameter); scutes large . . . . . *Gasterosteus aculeatus*
(Threespine Stickleback/Épinoche à Trois Épines)
[widespread in Québec]

Key to Centrarchidae
(Sunfishes/Crapets)

1. Dorsal fin spines 6-9, usually 7-8; length of whole anal and dorsal fin bases about equal . . . . . *Pomoxis nigromaculatus*
(Black Crappie/Marigane Noire)
[Ottawa, Gatineau and Rideau rivers]

Dorsal fin spines 9-13; length of whole anal fin base 1.5-3.3 times in whole dorsal fin base length 2

2. Anal fin spines 5-7, usually 6, folding into a groove; length of anal fin base about 1.5 times in whole dorsal fin base length; 7-11 distinctive horizontal rows of spots below the lateral line; eye red . . . . . *Ambloplites rupestris*
(Rock Bass/Crapet de Roche)
[widespread]

Anal fin spines 3, no basal groove; length of anal fin base 2.1-3.3 times in whole dorsal fin base length; no horizontal rows of spots below the lateral line 3

3. Lateral line scales small, 58-81; body rounded in cross section and elongate, maximum body depth 2.5-5.0 (usually 3.0 or more) times in body length from snout tip to end of scales 4

Lateral line scales large, 35-50; body compressed in cross section and deep, maximum body depth 1.7-3.0 (usually 2.5 or less) times in body length from snout tip to end of scales 5

4. Upper jaw extends back to about mid-pupil but not behind eye; lateral line scales 67-81; scales present on the bases of the soft dorsal and anal fins; young fish with 3 strong bars on caudal fin, an orange bar at the fin base, a black bar on the fin, and broad white to yellow bar on fin tips; caudal spot weak to absent in young; flank in young with many bronze spots,

often forming 8-16 distinct bar . . . . . *Micropterus dolomieu*
(Smallmouth Bass/Achigan à Petite Bouche)
[widespread]

Upper jaw extends back to a level behind eye; lateral line scales 58-77 (usually less than 70 in Canada); no scales on the bases of the soft dorsal and anal fins; caudal fin in young not clearly barred, yellowish to reddish at base, black distally and only extreme distal margin of fin white; well-developed caudal spot in young; young fish with a flank stripe, sometimes in separate blotches. . . . . *Micropterus salmoides*
(Largemouth Bass/Achigan à Grande Bouche)
[widespread]

5. Opercular or "ear" flap black with a red spot at posterior edge (white in preserved fish); opercular flap stiff and inflexible at its bony edge; cheeks with wavy blue streaks; gill rakers short and rounded, longest raker not reaching second adjacent raker when appressed (in adults, longer in young but not as long as in young bluegills); no black blotch at posterior base of second dorsal fin . . . . . **Lepomis gibbosus*
(Pumpkinseed/Crapet-Soleil)
[widespread]

Opercular flap all black; flap thin and flexible at its bony edge; head without blue streaks but a blue sheen ventrally; gill rakers relatively long and slender, longest raker reaching base of second or third adjacent raker when appressed (in adults, shorter in young; compare young fish of similar size in these two species); black blotch at posterior base of second dorsal fin on last 5 rays. . . . . **Lepomis macrochirus*
(Bluegill/Crapet Arlequin)
[Ottawa and Rideau rivers]

* Note: These two species are known to hybridize freely in Canada, and hybrids breed with parents, giving a continuous range in characters between the two species. Hybridization is not recorded for the NCR but should it occur, identification to species would not be possible.

Key to Percidae
(Perches/Perches)

1. Mouth large, upper jaw extending to or beyond eye mid-point; lower edges of preopercle (**L-shaped bone in front of operculum or gill cover**) serrated; caudal fin forked; branchiostegal rays (**bony struts on underside of head**) 7-8, usually 7. 2

Mouth small, upper jaw not extending beyond anterior quarter of eye margin; lower edges of preopercle smooth; caudal fin rounded or weakly emarginate; branchiostegal rays 5-6, usually 6 4

2. Anal fin soft rays 6-9, usually 7-8; lower jaw teeth about equal in size, no canines; body compressed in cross section; flanks with 5-10 distinctive, wide, dark bars ..... *Perca flavescens*
(Yellow Perch/Perchaude)
[widespread]

Anal fin soft rays 10-14, usually 12-13; lower jaw with a pair of canine teeth at jaw tip; body subcylindrical in cross section; vague, interrupted bars only in young 3

3. Adults with large black blotch at rear base of spiny dorsal fin, no other spots on spiny fin membranes; no scales on operculum in adults; 5-8 dark saddles over the back; lower lobe of caudal fin usually white at tip; pyloric caeca 3, about equal in length to stomach ..... *Sander vitreus*
(Yellow Walleye/Doré)
[widespread]

Adults without large black blotch at rear base of spiny dorsal fin although membranes with small to moderate half-moon black spots; scales on operculum in adults; 3-4 brown saddles over the back; lower lobe of caudal fin not white at tip; pyloric caeca 3-9, usually 5, shorter than stomach ..... *Sander canadense*
(Sauger/Doré Noir)
[Ottawa and Gatineau rivers]

4. Anal fin large, its area about equal to or larger than soft dorsal fin; body elongate and rounded; midline of belly between and behind pelvic fins naked (females), or with enlarged scales (males) 5

Anal fin small, its area much less than soft dorsal fin; body more compressed than rounded; midline of belly between and behind pelvic fins scaled or not, but no enlarged scales 6

5. First dorsal fin spines 12-17, usually 14-16; lateral scale rows (**counted along mid-flank from head to tail**) 67-103, usually 77 or more; no deep groove between the snout and lip (premaxillaries not protractile) ..... *Percina caprodes*
(Logperch/Fouille-Roche)
[widespread]

First dorsal fin spines 9-13, usually 10-12; lateral scale rows 43-61, usually 52 or less; a deep to weak groove between the snout and lip (premaxillaries protractile) ..... *Percina copelandi*
(Channel Darter/Dard Gris)
[Quyon stream, Gatineau River]

6. Snout and upper lip separated by a groove (premaxillaries protractile); a single thin anal fin spine 7

Snout and upper lip joined, not separated by a groove (premaxillaries not protractile); two anal fin spines, the first thick 8

7. Infraorbital (**under the eye**) and supratemporal (**over back of head**) head canals not continuous; normally 6 pores or fewer on the infraorbital canal; 1-11, usually 9 or fewer, pores in the preoperculomandibular head canal (**canal runs from lower jaw onto the preopercle bone**); 9-15, usually 12 or fewer, dorsal fin soft rays; cheek (**area below and behind the eye**) and nape (**area behind the top of the head**) usually scaleless or with very few scales; usually 3-4 bars on the caudal fin ..... **Etheostoma nigrum*
(Johnny Darter/Raseux-de-Terre)
[widespread]

Infraorbital and supratemporal head canals continuous; normally 8 pores or more on the infraorbital canal; 9-13, usually 11, pores in the preoperculo-mandibular head canal; 10-17, usually 13 or more, dorsal fin soft rays; cheek and nape usually covered with scales; usually 5-8 bars on the caudal fin ..... **Etheostoma olmstedi*
(Tessellated Darter/Dard Tessellé)
[widespread]

* Note: Head canals and pores are best seen in specimens injected by capillary action with the temporary stain methylene blue. These two species hybridize and some scientists regard them as a single species (Brett, 1985).

8. Cheeks and opercles scaled (may be obscured by skin); dorsal fin spines longer than eye diameter; soft dorsal fin rays 9-13, usually 10-11 .... *Etheostoma exile*
(Iowa Darter/Dard à Ventre Jaune)
[widespread]

Cheeks and opercles not scaled; dorsal fin spines short, about eye diameter or less; soft dorsal fin rays 10-15, usually 12-14 .... *Etheostoma flabellare*
(Fantail Darter/Dard Barré)
[Québec streams]

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Brian Coad, Canadian Museum of Nature, P. O. Box 3443, Station D, Ottawa, Ontario K1P 6P4, e-mail: *bcoad@mus-nature.ca*

Table 1. List of the fish species in the National Capital Region.

Scientific name/Nom scientifique	English name	Nom français
Petromyzontidae (4 species)	**Lampreys**	**Lamproies**
Ichthyomyzon castaneus Girard, 1858	Chestnut Lamprey	Lamproie Brun
Ichthyomyzon fossor Reighard and Cummins, 1916	Northern Brook Lamprey	Lamproie du Nord
Ichthyomyzon unicuspis Hubbs and Trautman, 1937	Silver Lamprey	Lamproie Argentée
Lampetra appendix (DeKay, 1842) (formerly *Lampetra lamottei*)	American Brook Lamprey	Lamproie de l'Est
Acipenseridae (1 species)	**Sturgeons**	**Esturgeons**
Acipenser fulvescens Rafinesque, 1817	Lake Sturgeon	Esturgeon Jaune
Lepisosteidae (1 species)	**Gars**	**Lépisostés**
Lepisosteus osseus (Linnaeus, 1758)	Longnose Gar	Lépisosté Osseux
Amiidae (1 species)	**Bowfins**	**Poissons-Castors**
Amia calva Linnaeus, 1766	Bowfin	Poisson-Castor
Hiodontidae (1 species)	**Mooneyes**	**Laquaiches**
Hiodon tergisus Le Sueur, 1818	Mooneye	Laquaiche Argentée

Anguillidae (1 species)	**Freshwater Eels**	**Anguilles d'Eau Douce**
Anguilla rostrata (Le Sueur, 1817)	American Eel	Anguille d'Amérique
Clupeidae (1 species)	**Herrings**	**Harengs**
Alosa pseudoharengus (Wilson, 1811)	Gaspereau	Gaspareau
Cyprinidae (22 species)	**Carps**	**Carpes**
Carassius auratus (Linnaeus, 1758)	Goldfish	Cyprin Doré
Cyprinella spiloptera (Cope, 1867) (formerly *Notropis spilopterus*)	Spotfin Shiner	Méné Bleu
Cyprinus carpio Linnaeus, 1758	Common Carp	Carpe
Hybognathus hankinsoni Hubbs in Jordan, 1929	Brassy Minnow	Méné Laiton
Hybognathus regius Girard, 1856 (formerly *Hybognathus nuchalis*)	Eastern Silvery Minnow	Méné d'Argent de l'Est
Luxilus cornutus (Mitchill, 1817) (formerly *Notropis cornutus*)	Common Shiner	Méné à Nageoires Rouges
Margariscus margarita (Cope, 1867) (formerly *Semotilus margarita*)	Pearl Dace	Mulet Perlé
Notemigonus crysoleucas (Mitchill, 1814)	Golden Shiner	Chatte de l'Est
Notropis atherinoides (Rafinesque, 1818)	Emerald Shiner	Méné Émeraude
Notropis heterodon (Cope, 1865)	Blackchin Shiner	Menton Noir
Notropis heterolepis Eigenmann and Eigenmann, 1893	Blacknose Shiner	Museau Noir
Notropis hudsonius (Clinton, 1824)	Spottail Shiner	Queue à Tache Noir
Notropis ludibundus (Girard, 1856) (formerly *Notropis stramineus*)	Sand Shiner	Méné Paille
Notropis rubellus (Aggassiz, 1850)	Rosyface Shiner	Tête Rose
Notropis volucellus (Cope, 1865)	Mimic Shiner	Méné Pâle
Phoxinus eos (Cope, 1861) (formerly *Chrosomus eos*)	Northern Redbelly Dace	Ventre Rouge du Nord
Phoxinus neogaeus Cope, 1867 (formerly *Chrosomus neogaeus*)	Finescale Dace	Ventre Citron
Pimephales notatus (Rafinesque, 1820)	Bluntnose Minnow	Ventre-Pourri
Pimephales promelas Rafinesque, 1820	Fathead Minnow	Tête-de-Boule
Rhinichthys cataractae (Valenciennes in Cuvier and Valenciennes, 1842)	Longnose Dace	Naseux de Rapides
Semotilus atromaculatus (Mitchill, 1818)	Creek Chub	Mulet à Cornes
Semotilus corporalis (Mitchill, 1817)	Fallfish	Ouitouche

Catostomidae (7 species)	**Suckers**	**Meuniers**
Carpiodes cyprinus (Le Sueur, 1817)	Quillback	Couette
Catostomus catostomus (Forster, 1773)	Longnose Sucker	Meunier Rouge
Catostomus commersonnii (Lacepède, 1803) (formerly *Catostomus commersoni*)	White Sucker	Meunier Noir
Moxostoma anisurum (Rafinesque, 1820)	Silver Redhorse	Suceur Blanc
Moxostoma carinatum (Cope, 1870)	River Redhorse	Suceur Ballot
Moxostoma macrolepidotum (Le Sueur, 1817)	Shorthead Redhorse	Suceur Rouge
Moxostoma valenciennesi Jordan, 1885	Greater Redhorse	Suceur Jaune
Ictaluridae (6 species)	**Bullhead Catfishes**	**Barbottes**
Ameiurus natalis (Le Sueur, 1819) (formerly *Ictalurus natalis*)	Yellow Bullhead	Barbotte Jaune
Ameiurus nebulosus (Le Sueur, 1819) (formerly *Ictalurus nebulosus*)	Brown Bullhead	Barbotte Brune
Ictalurus punctatus (Rafinesque, 1818)	Channel Catfish	Barbue de Rivière
Noturus flavus Rafinesque, 1818	Stonecat	Barbotte de Rapides
Noturus gyrinus (Mitchill, 1817)	Tadpole Madtom	Chat-Fou Brun
Noturus insignis (Richardson, 1836)	Margined Madtom	Chat-Fou Livré
Esocidae (2 species)	**Pikes**	**Brochets**
Esox lucius Linnaeus, 1758	Northern Pike	Grand Brochet
Esox masquinongy Mitchill, 1824	Muskellunge	Maskinongé
Umbridae (1 species)	**Mudminnows**	**Umbres**
Umbra limi (Kirtland, 1841)	Central Mudminnow	Umbre de Vase
Osmeridae (2 species)	**Smelts**	**Éperlans**
Osmerus mordax (Mitchill, 1814)	Rainbow Smelt	Éperlan Arc-en-Ciel
Osmerus spectrum Cope, 1870	Pygmy Smelt	Éperlan Nain
Salmonidae (9 species)	**Salmons**	**Saumons**
Coregonus artedi Le Sueur, 1818 (formerly *Coregonus artedii*)	Lake Cisco	Cisco de Lac
Coregonus clupeaformis (Mitchill, 1818)	Lake Whitefish	Grande Corégone
Oncorhynchus clarkii (Richardson, 1836) (formerly *Salmo clarki)*	Cutthroat Trout	Truite Fardée
Oncorhynchus mykiss (Walbaum, 1792) (formerly *Salmo gairdneri(i)*	Rainbow Trout	Truite Arc-en-Ciel

Salmo salar Linnaeus, 1758	Atlantic Salmon	Saumon de l'Atlantique
Salmo trutta Linnaeus, 1758	Brown Trout	Truite Brune
Salvelinus alpinus (Linnaeus, 1758)	Arctic Charr	Omble Chevalier
Salvelinus fontinalis (Mitchill, 1814)	Brook Charr (Trout)	Omble de Fontaine
Salvelinus namaycush (Walbaum, 1792)	Lake Charr (Trout)	Touladi
Percopsidae (1 species)	**Trout-Perches**	**Omiscos**
Percopsis omiscomaycus (Walbaum, 1792)	Trout-Perch	Omisco
Gadidae (1 species)	**Cods**	**Morues**
Lota lota (Linnaeus, 1758)	Burbot	Lotte
Atherinidae (1 species)	**Silversides**	**Poissons d'Argent**
Labidesthes sicculus (Cope, 1865)	Brook Silverside	Crayon d'Argent
Fundulidae (1 species)	**Killifishes**	**Fondules**
Fundulus diaphanus (Le Sueur, 1817)	Banded Killifish	Fondule Barré
Gasterosteidae (3 species)	**Sticklebacks**	**Épinoches**
Culaea inconstans (Kirtland, 1841)	Brook Stickleback	Épinoche à Cinq Épines
Gasterosteus aculeatus Linnaeus, 1758	Threespine Stickleback	Épinoche à Trois Épines
Pungitius pungitius (Linnaeus, 1758)	Ninespine Stickleback	Épinoche à Neuf Épines
Cottidae (1 species)	**Sculpins**	**Chabots**
Cottus bairdii Girard, 1850 (formerly *Cottus bairdi*)	Mottled Sculpin	Chabot Tacheté
Centrarchidae (6 species)	**Sunfishes**	**Crapets**
Ambloplites rupestris (Rafinesque, 1817)	Rock Bass	Crapet de Roche
Lepomis gibbosus (Linnaeus, 1758)	Pumpkinseed	Crapet-Soleil
Lepomis macrochirus Rafinesque, 1819	Bluegill	Crapet Arlequin
Micropterus dolomieu (Lacepède, 1802) (formerly *Micropterus dolomieui*)	Smallmouth Bass	Achigan à Petite Bouche
Micropterus salmoides (Lacepède, 1802)	Largemouth Bass	Achigan à Grande Bouche
Pomoxis nigromaculatus (Le Sueur in Cuvier and Valenciennes, 1829)	Black Crappie	Marigane Noir

Percidae (9 species)	**Perches**	**Perches**
Etheostoma exile (Girard, 1859)	Iowa Darter	Dard à Ventre Jaune
Etheostoma flabellare Rafinesque, 1819	Fantail Darter	Dard Barré
Etheostoma nigrum Rafinesque, 1820	Johnny Darter	Raseux-de-Terre
Etheostoma olmstedi Storer, 1842	Tessellated Darter	Dard Tessellé
Perca flavescens (Mitchill, 1814)	Yellow Perch	Perchaude
Percina caprodes (Rafinesque, 1818)	Logperch	Fouille-Roche
Percina copelandi (Jordan, 1877)	Channel Darter	Dard Gris
Sander canadense (Griffith and Smith, 1834) (formerly *Stizostedion canadense*)	Sauger	Doré Noir
Sander vitreus (Mitchill, 1818) (formerly *Stizostedion vitreum*)	Yellow Walleye	Doré
Sciaenidae (1 species)	**Drums**	**Tambours**
Aplodinotus grunniens Rafinesque, 1819	Freshwater Drum	Malachigan

Whither the Chafers?

Jack Holliday

The first week of January 2000 was unusually mild with daily temperatures near the melting point. On January 10th the temperature rose to +2°C and an inch of rain fell. On the 11th there was more rain and temperatures were still above freezing.

The thin covering of snow melted away leaving shallow lakes in low-lying areas. This "January Thaw" left the lawns and gardens brown and bare. Not a pleasant thaw with sunny skies and gentle breezes, but a damp and chilly one.

The night of January 13th the temperature dropped to -20°C and was followed by nights of -25°, -22°, -12°, -20°, -22°, -18 ,-22°, -26°, then two nights of -24°C. The shallow ponds froze solid and without snow cover the frost penetrated deep into the earth. We gardeners feared for our roses and other perennials.

Late March and early April proved our fears were all too real. The crocus, our first "spring" flower either produced small, thin, flowers or just a few small leaves. Daffodils and tulips were also affected, many bulbs did not flower. Roses were frozen and even irises and delphiniums were killed. The plants which did not succumb were left weak and sickly. Subsequent examination revealed that many bulbs, although so frozen that they were unable to produce flowers, did manage to grow some small bulblets. These may grow to flowering size in a year or two, but the roses and delphiniums are gone forever.

And now the "good news". For the first time I grew two rows of potatoes and removed only one Colorado Potato Beetle. I suppose the deep cold found the beetles, an inch or two buried in the earth, and killed them. Earwigs, that summertime pest, had their numbers severely reduced.

Most surprisingly of all, the European Chafer larvae, which destroyed our lawns in the summer of 1999, failed to emerge as adults. I, for one, expected them to emerge from the ground by the millions and fly into nearby trees to feed and mate. Certainly they were alive in April because the Starlings, Crows and Ring-billed Gulls excavated them by the hundreds.

June came and went. No chafers. The cold and wet months of May and June, delayed garden plants (except for the grasses which thrived) and, I thought, also delayed the chafers. Surely they will appear in July?

July came and went. No chafers. Now I think that the January thaw which melted the snow cover, and the following eleven nights of below zero temperatures somehow prevented the chafers from progressing to the adult stage. Certainly something happened to them. I have seen none.

Perhaps others have a better explanation of what happened? Some claim the excessive rains of May and June drowned them. Whatever, our lawns thrived without the root-destroying larvae and the unusual amount of rain produced the lushest lawns in memory.

Now, if only we knew what happened to the chafers?

Answer The Call

Canadian Nature Federation

Frog populations have been declining worldwide since the 1980's and currently the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) lists three populations of frogs as endangered, and six others as threatened or of special concern. Additionally, there have been unexplained population declines in species not normally considered at risk.

The Canadian Nature Federation(CNF) and Environment Canada's Ecological Monitoring and Assessment Network (EMAN) continues to monitor frog populations in order to determine the extent of this decline and to identify probable causes. A new frog watching season has already begun, but volunteers of all ages are always welcome.

Pictures and descriptions of Canada's frogs and toads can be found on the Frogwatch ID poster available in English or French and free of charge. A printed copy of the identification poster and the Frogwatch newsletter can be obtained from the Canadian Nature Federation at 1 Nicholas Street, Suite 606, Ottawa, ON, K1N 7B7; e-mail:frogwatch@cnf.ca.

If you are interested in learning more about Frogwatch or would like to participate visit the National Frogwatch website at
http://eqb-dqe.cciw.ca/emanops/intro.html or the CNF website at
http://www.cnf.ca/frog/index.html or call 1-888-31FROGS.

Bird Banding Open House

Eve Ticknor

The Innis Point Bird Observatory invites you to attend a bird banding Open House to be held September 15, 2001 (rain date will be September 22) at 9:00 a.m.

We are located in Kanata at the corner of Riddell Road and Sixth Line. If you are coming from the east, take either Highway 417 or Carling Avenue to March Road south and then turn west onto Dunrobin Road. Riddell is the first right. Proceed north to the end of the road where there is a large, locked gate. It is important that everyone who wishes to attend be on time as this station belongs to National Defence and is a restricted area.

For more information, please contact Eve Ticknor at 737-7551 or Bill Petrie at 820-8434.

The Ottawa-Hull Fall Bird Count

Bev McBride

The 2001 fall bird count will begin at 3:00 p.m. on Saturday October 20 and will end at 3:00 p.m. on Sunday October 21. Afterward we will have the customary tally and dinner. Please mark these dates on the calendar. More information will be available in the next issue of *T&L*.

2001 Seedathon

Chris Lewis

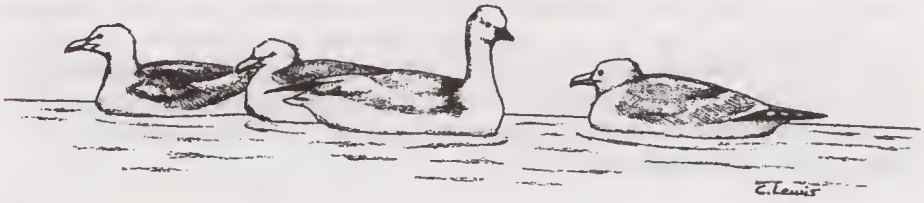
This year (2001) is the 20th Anniversary of the OFNC Seedathon!. . . . and "the team" that enjoyed such a successful day finding birds for the Seedathon last year is planning to celebrate by giving it another go (maybe even beating the species record) this year! Labour Day weekend is again the plan, probably Sunday September 2.

For those with access to the Internet, watch the OFNC website for details, to be confirmed sometime in August.

Sponsors who made pledges last year will be contacted again and anyone else interested in making a pledge can do so by contacting me by telephone (722-5929), or by e-mail at *weewa@primus.ca.*

Pledges can be made as a flat amount, or an amount per species (for example, you cnd pledge $10.00, or you can pledge 10 cents per species, which would amount to $10.00 if we find 100 species). Please provide your name, address, phone number, and whether or not you require a tax receipt.

Many thanks again to all who have sponsored the Seedathon in the past; you have certainly kept the birds who visit the OFNC feeders happy--let's keep them coming for another 20 years.



Immature Ross' Goose
with Herring Gulls
9 October 2000

Coming Events

arranged by the Excursions & Lectures Committee.
For further information,
call the Club number (722-3050) after 10 a.m.

Times stated for excursions are departure times. Please arrive earlier; leaders start promptly. If you need a ride, don't hesitate to ask the leader. Restricted trips will be open to non-members only after the indicated deadlines.

ALL OUTINGS: Please bring a lunch on full-day trips and dress according to the weather forecast and the activity. Binoculars and/or spotting scopes are essential on all birding trips. Unless otherwise stated, transportation will be by car pool.

REGISTERED BUS TRIPS: Make your reservation for Club bus excursions by sending a cheque or money order (payable to The Ottawa Field-Naturalists' Club) to Box 35069, Westgate P.O., Ottawa, Ontario K1Z 1A2, at least ten days in advance. Include your name, address, telephone number and the name of the outing. Your cooperation is appreciated by the Committee so that we do not have to wait to the last moment to decide whether a trip should be cancelled due to low registration. We also wish to discourage postponing the actual payment of bus fees until the day of the event.

EVENTS AT THE CANADIAN MUSEUM OF NATURE: The Club is grateful to the Museum for their cooperation, and thanks the Museum for the use of these excellent facilities. Club members must be prepared to show their membership cards to gain access for Club functions after regular museum hours.

BIRD STATUS LINE: Phone 860-9000 to learn of recent sightings or birding potential in the Ottawa area. To report recent sightings call Michael Tate at 825-1231. This service is run on behalf of the Birds Committee and is available to members and non-members.

Le Club des Ornithologues de l'Outaouais has a similar service, in French, run by Daniel St-Hilaire at 778-3413 and the Bird Status Line is 778-0737.

July to September

FLETCHER WILDILFE GARDEN

The interpretation Centre will be open Sunday afternoons to 4:00 p.m. and most Friday mornings.
Come in and see our displays or browse our library of reference works. We also have free leaflets and some Club publications for sale.

June to July

2001 FALCON WATCH

Coordinator: Eve Ticknor,
Coordinator, OFNC Peregrin Falcon Street Watch

Once again we are looking for help with the Falcon Watch Crew. We are looking for volunteers to help monitor the fledging stage of young peregrine falcon chicks. This is done in groups, in shifts, 7 days a week for whatever time you can give. If you can help out, please contact Eve at 737-7551 or by e-mail at *sandbird@magma.ca*. We offer training and an opportunity to learn more about these wonderful birds.

Saturday 7 July 6:00 a.m.

GENERAL INTEREST VISIT TO ALGONQUIN PARK

Leaders: Tony Beck and Roy John

Meet: Lincoln Fields Shopping Centre (formerly Lincoln Heights Galleria) parking lot, northeast corner of the parking lot, Richmond Road at Assaly Road.

This midsummer trip will feature primarily northern nesting birds, including Warblers, Tanagers, Grey Jays, Ruffed Grouse, Spruce Grouse, and many others. We also hope to see characteristic seasonal flowers and insects. Please register by June 23 so we can gauge the number of people interested in advance. If there are a large number of participants, we will arrange to travel by bus for a small fee.

Saturday 14 July 8:30 a.m.

GENERAL INTEREST WALK TO SHAW WOODS AND GOLDEN LAKE VILLAGE

Leader: Bill Grant

Meet: Lincoln Fields Shopping Centre parking lot, northeast corner, Richmond Road at Assaly Road.

The Shaw Woods is a long established and protected nature reserve of a square mile or more, overlooking the shores of Lake Dore, north of Eganville. The area is on a gentle hill and is covered with mixed forest, composed mainly of hardwood, but with a good variety of spruces, including some quite large trees. There is also a small wetland area. The nearby village of Golden Lake has one or two interesting stores. Car-pooling is encouraged and participants sharing a ride should be prepared to contribute towards expenses. Bring a lunch for this daylong excursion.

Sunday
15 July
1:00 p.m.

FERN IDENTIFICATION FIELD TRIP
Leader: Bill Arthurs
Meet: Elmvale Shopping centre, northeast corner of the parking lot, St. Laurent Boulevard at Smyth Road.
Participants will have a chance to learn about the diverse ferns that grow in the Mer Bleue bog and to get practical experience of using identification keys. This afternoon walk should also give you some ideas about the species you might wish to cultivate in your garden.

Saturday
21 July
8:30 a.m.

THE DRAGONS OF MORRIS ISLAND
Leader: Chris Lewis
Meet: Lincoln Fields Shopping Centre northeast corner of Richmond and Assaly Roads.
Surrounded by large stretches of slowly flowing water, Morris Island is a wonderful habitat for dragonflies and damselflies. Join Chris's excursion and you may see these fast-moving insects catch its prey while on the wing. An insect net is a must if you want to see their fantastic colour patterns. Bring a lunch and insect repellent-for the flies, not the dragons! Again, children are most welcome on this outing.

Sunday
29 July
11:30 a.m.

COCKLES AND MUSSELS ALIVE, ALIVE, OH!
Leader: Fred Schueler
Meet: Lincoln Fields Shopping Centre parking lot, northeast corner.
Join this excursion wih members of the Eastern Ontario Museum and cool off on a hot day visiting two of the hotspots of native Unionid Mussel diversity. We'll proceed to the Jock River at Greenbank Road and look at the diverse Unionids- big old *Lampsilis 'ovata'*, some of the finest *Strophitus undulatus* in Eastern Ontario, and possibly *Ligumia recta*, then proceed to the lock bypass rapids of the Rideau at Andrewsville, where *Lasmigona costata, Lampsilis 'ovata'* and *Ligumia recta* reach great ages and huge sizes, and *Lampsilis radiata* lie about on the bedrock. Come with wading shoes and a lunch, and prepare to get refreshingly wet. PLEASE REGISTER AT 722-3050 BY 27 JULY.

Saturday
11 August
8:00 a.m.
to
5:00 p.m

MONTREAL BIODOME
Leader: Roy John
Meet: Lincoln Fields Shopping Centre parking lot, northeast corner, Richmond Road at Assaly Road.
Cost: $20.00 for the bus PLUS $8.00 for the entrance fee ($6.00 for seniors). See introduction to Coming Events for information.
Visit the Montreal Biodome or Botanical Gardens-Insectarium when the gardens are at their peak. About 18 groups of flowers (Begonias, dahlias, roses, orchids, etc.) should be in full bloom. The outing is limited to 42 people so PLEASE REGISTER AT THE CLUB NUMBER (722-3050) BEFORE 2 AUGUST. Bring a lunch or buy one there. For more information visit
http://www.ville.montreal.qc.ca/jardin

Saturday
18 August
7:00 a.m.

LATE SUMMER BIRDS AT BRITTANIA
Leader: Ken Allison.
Meet: Lincoln Fields Shopping Centre parking lot, northeast corner, Richmond Road at Assaly Road.
This is a chance to see some interesting birds on the wing towards the end of summer. Bring along a snack, as well as binoculars and a spotting scope, if you have them.

Sunday
9 September
7:00 a.m.

LATE SUMMER BIRDS AND CONFUSING FALL WARBLERS
Leader: Bernie Ladouceur.
Meet: Lincoln Fields Shopping Centre parking lot, northeast corner, Richmond Road at Assaly Road.
This is a chance to sort out some confusing birds during the fall migration. Bring along a snack, binoculars and a spotting scope, if you have one.

Tuesday **11 September** **8:00 p.m.**	**OFNC MONTHLY MEETING** **MEMBERS' SLIDE NIGHT** **Meet:** Auditorium, Canadian Museum of Nature, Metcalfe and McLeod Streets. **Admission:** At least one natural history slide or a single loonie donation to the Alfred Bog Fund. This is your chance to show fellow OFNC members your favourite slides (15 maximum) on natural history and/or the people with whom you have shared past trips and other memorable occasions. It would be appreciated if you would talk about your slides but you do not need to speak long. Please contact either Philip Martin (729-3218) or Roy John (748-9963) so that your presentation can be scheduled.

Saturday **15 September** **9:00 a.m.**	**ASTERS AND GOLDENRODS** **Leaders:** Albert Dugal **Meet:** Lincoln Heights Shopping Centre, NE corner of the parking lot, Richmond Roadat Assaly Road. Asters and Goldenrods are easily recognised as they are prominent fall plants. However, the various species can be difficult to tell apart. Here is your chance to learn to distinguish them. Bring a snack for this half-day trip as well as back issues of "Goldenrods"(T&L 25 (4): 114-121) and "Asters of the Ottawa District" (T&L 29 (3): 89-99) or any other field guides that may help solve the riddles posed by these plants.

September or early October Date and Time to be decided.	**STARGAZING WITH ROYAL ASTRONOMICAL SOCIETY** **Leaders:** Deborah Tigner and Philip Martin **Meet:** Lincoln Fields Shopping Centre. The Royal Astronomical Society is planning a day to show exhibits of the Solar System, Galaxies, Meteorites and other features of the Universe at the St. Laurent Mall some time in the late summer or fall. This will be followed by a star-party at Pinhey's Point on the Ottawa River to the north of Kanata. Experience an evening looking through a telescope, finding stars, galaxies, and other features of interest (such as northern lights) in the night sky. The trip is limited to the first 25 people that REGISTER BEFORE SEPTEMBER 1 AT THE CLUB NUMBER (777-3050). Registrants will be advised when a specific date has been chosen and a map with directions will be distributed at the meeting place. Warm clothing and a hot drink are strongly recommended. Unfavourable weather will necessitate a rescheduling.

Saturday
22 September
9:30 a.m.

SEARCHING FOR FOSSILS OF THE CHAMPLAIN SEA
Leader: Stephen Cumbaa
Meet: Parking lot of Apple Saddlery, 1875 Innes Road (Slightly east and opposite of Costco (Price Club)). From Ottawa, take 417 east to the split. Keep right and exit at Innes Road. Continue east (left) for about 1 km.
After a brief introduction, we will leave from the parking lot at 9:45. We will focus on looking for invertebrate and vertebrate fossils from marine deposits of the Champlain Sea, an incursion of arctic marine water which flooded the Ottawa Valley from the St. Lawrence after the glaciers melted. Champlain Sea deposits date from 12,000 to 9,500 years ago. Finding fossil fish, plants, and invertebrates is likely. We will be back by 11:45 at the latest. Old clothes and rubber boots is recommended. A walking staff, a small backpack (water, a small first aid kit, etc.)and plastic bags or cloths for collecting will also be useful. Climbing is involved and slipping on Leda Clay and/or spills in the creek are a near certainty, so don't bring (or protect) anything that can't take mud or water.

Sunday
7 October

FALL COLOURS AT LAC-LA-BLANCHE
Leaders: Eileen Evans and Pearl Peterkin
Meet: Supreme Court, front entrance Wellington at Kent St.
Cost: Bus fee plus suggested donation of $2 (PLEASE REGISTER EARLY; See the introduction to Coming Events for information.)
Enjoy a scenic ride through the picturesque rolling hills of the Outaouais region, en route to the Forest Education Centre at Lac-la-Blanche. There we will explore the trails through one of the few old growth forests in Quebec. We will look for interesting plants and enjoy the splendour of the autumn leaves. Bring lunch and dress warmly. For more information call Eileen (741-0789) or Pearl (747-2985).

Tuesday 9 October 8 :00 p.m.	**OFNC MONTHLY MEETING** **LIFE IN THE FOREST** **Speaker:** Jim Robertson **Meet:** Auditorium, Canadian Museum of Nature, Metcalfe and McLeod Streets. Come and see the slide show "Year in the Life of a Forest", a 23 minute presentation, with musical accompaniment. Then try to identify the plants shown on a second silent run!

Sunday 14 October 8:00 a.m.	**FALL BIRDS AND LATE MIGRANTS** **Leader:** Roy John **Meet:** Lincoln Heights Shopping Centre, north-east corner of the parking lot, Richmond Road at Assaly Road. Participants will visit several locales along the Ottawa River, starting with the Britannia Filtration Plant. On this half-day outing, we will look for waterfowl and other migrating species. Bring a snack and a warm drink.

DEADLINE: Material intended for the October-December 2001 issue must be in the editor's hands by August 15, 2001. Mail your manuscripts to:

Karen McLachlan Hamilton
2980 Moodie Drive, Nepean, ON K2J 4S7
H: (613) 838-4943 e-mail: *hamilton@storm.ca*

ANY ARTICLES FOR TRAIL & LANDSCAPE?

Have you been on an interesting field trip or made some unusual observations recently? Is there a colony of rare plants or a nesting site that needs protection? Write up your thoughts and send them to *Trail & Landscape*. We can accept e-mail, IBM-compatible diskettes, or submissions in traditional form—typed, written, printed or painted!

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